

## **TABLE OF CONTENTS OF SPECIAL PROVISIONS**

Note: This Table of Contents has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this Table of Contents shall not be considered part of the contract.

## Table of Contents

|   |    |
|---|----|
| COMBINED PROJECTS.....  | 4  |
| CONTRACT TIME AND LIQUIDATED DAMAGES.....   | 5  |
| PRE-BID SITE VISIT – METRO NORTH.....   | 8  |
| NOTICE TO CONTRACTOR – PRE-BID QUESTIONS AND ANSWERS.....   | 9  |
| NOTICE TO CONTRACTOR - CONTRACT DURATION .....  | 10 |
| NOTICE TO CONTRACTOR – COMPASS SUBMITTALS.....  | 11 |
| NOTICE TO CONTRACTOR – FEDERAL WAGE DETERMINATIONS (Davis Bacon Act) .....  | 12 |
| NOTICE TO CONTRACTOR – MINIMUM CONCRETE COMPRESSIVE STRENGTH.....   | 13 |
| NOTICE TO CONTRACTOR – PORTLAND CEMENT CONCRETE (PCC) .....   | 14 |
| MIX CLASSIFICATIONS.....  | 14 |
| NOTICE TO CONTRACTOR – CAS CERTIFICATION FOR ABRASIVE.....  | 15 |
| BLAST CLEANING AND COATING WORK .....   | 15 |
| NOTICE TO CONTRACTOR – ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATINGS .....  | 16 |
| NOTICE TO CONTRACTOR – USE OF STATE POLICE OFFICERS.....  | 19 |
| NOTICE TO CONTRACTOR – FORM 818 ARTICLE 1.05.19 – FIELD ERECTOR PREQUALIFICATION.....                                 | 20 |
| NOTICE TO CONTRACTOR – 9.49 – FURNISHING, PLANTING AND MULCHING TREES, SHRUBS, VINES AND GROUND COVER PLANTS.....     | 21 |
| NOTICE TO CONTRACTOR – FEDERAL RAIL SAFETY REGULATIONS (49 C.F.R. Part 219) CONCERNING ALCOHOL AND DRUG TESTING ..... | 22 |
| NOTICE TO CONTRACTOR – RAILROAD SPECIFICATIONS.....   | 23 |
| NOTICE TO CONTRACTOR – RIGHTS OF WAY RESTRICTIONS.....  | 24 |
| NOTICE TO CONTRACTOR – ELECTRONIC ENGINEERING DATA (EED) .....  | 25 |
| NOTICE TO CONTRACTOR – 1.05 CONTROL OF THE WORK .....   | 26 |
| NOTICE TO CONTRACTOR – QUALITY CONTROL PROGRAM.....   | 27 |
| NOTICE TO CONTRACTOR – EXISTING DOT ELECTRICAL FACILITIES .....   | 28 |
| NOTICE TO CONTRACTOR – EXISTING IMS .....   | 29 |
| NOTICE TO CONTRACTOR – HAZARDOUS MATERIALS INVESTIGATIONS.....  | 30 |
| NOTICE TO CONTRACTOR – PROCUREMENT OF MATERIALS.....  | 32 |
| NOTICE TO CONTRACTOR – WORK ON RAILROAD PROPERTY.....   | 33 |
| NOTICE TO CONTRACTOR – PROTECTION OF EXISTING UTILITIES .....   | 35 |
| NOTICE TO CONTRACTOR – SITE NUMBER DESIGNATIONS.....  | 36 |
| NOTICE TO CONTRACTOR – VARIABLE QUANTITY ITEMS.....   | 37 |
| NOTICE TO CONTRACTOR – VERIFICATION OF PLAN DIMENSIONS AND FIELD MEASUREMENTS .....                                   | 38 |
| NOTICE TO CONTRACTOR – WATER TREATMENT PLANT SERVICE ROAD.....  | 39 |
| SECTION 1.02 – PROPOSAL REQUIREMENTS AND CONDITIONS .....   | 40 |
| SECTION 1.04 – SCOPE OF WORK.....   | 41 |
| SECTION 1.05 – CONTROL OF THE WORK .....  | 45 |
| SECTION 1.08 - PROSECUTION AND PROGRESS.....  | 63 |
| ON-THE-JOB TRAINING (OJT) WORKFORCE DEVELOPMENT PILOT: .....  | 69 |
| D.B.E. SUBCONTRACTORS AND MATERIAL SUPPLIERS OR MANUFACTURERS.....  | 73 |
| ITEM #0020765A – GUANO ABATEMENT .....  | 84 |
| ITEM #0020801A – ASBESTOS ABATEMENT .....   | 95 |

|   |     |
|---|-----|
| ITEM #0020905A – LEAD COMPLIANCE FOR ABRASIVE BLAST .....           | 107 |
| CLEANING AND MISCELLANEOUS TASKS .....                              | 107 |
| ITEM #0219011A – SEDIMENT CONTROL SYSTEM AT CATCH BASIN.....        | 123 |
| ITEM #0406002A – TEMPORARY PAVEMENT .....                           | 125 |
| ITEM #0406194A – JOINT AND CRACK SEALING OF BITUMINOUS.....         | 127 |
| CONCRETE PAVEMENT .....   | 127 |
| ITEM #0406287A – RUMBLE STRIPS - AUTOMATED.....                     | 132 |
| ITEM #0406289A – REMOVAL OF RUMBLE STRIPS.....                      | 136 |
| ITEM #0406999A – ASPHALT ADJUSTMENT COST .....                      | 139 |
| ITEM #0503030A – REMOVAL OF BRIDGE DECK CONCRETE.....               | 142 |
| ITEM #0503042.03A – REMOVAL OF BRIDGE DRAINAGE SYSTEM (SITE .....   | 144 |
| NO. 3) .....  | 144 |
| ITEM #0503042.04A – REMOVAL OF BRIDGE DRAINAGE SYSTEM (SITE .....   | 144 |
| NO. 4) .....  | 144 |
| ITEM #0503887A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 1) ..... | 145 |
| ITEM #0503888A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 2) ..... | 145 |
| ITEM #0503884A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 3) ..... | 145 |
| ITEM #0503885A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 4) ..... | 145 |
| ITEM #0503967A . TEMPORARY WORK PLATFORM.....                       | 150 |
| ITEM #0511003A – CLEAN EXISTING SCUPPERS.....                       | 152 |
| ITEM #0512018A – REMOVAL AND REPLACEMENT OF EXISTING .....          | 154 |
| BRIDGE DRAINAGE SYSTEM.....   | 154 |
| ITEM #0520032A – ELASTOMERIC CONCRETE HEADER .....                  | 157 |
| ITEM #0520036A – ASPHALTIC PLUG EXPANSION JOINT SYSTEM .....        | 162 |
| ITEM #0520041A – PREFORMED JOINT SEAL.....                          | 169 |
| ITEM #0521001A – ELASTOMERIC BEARING PADS.....                      | 172 |
| ITEM #0521003A – BEARING REPLACEMENT WITH ELASTOMERIC .....         | 173 |
| BEARING PADS .....  | 173 |
| ITEM #0522178A – CONSTRUCT CONCRETE KEEPER BLOCKS .....             | 178 |
| ITEM #0601107A – HIGH EARLY STRENGTH CONCRETE.....                  | 181 |
| ITEM #0601272A – VARIABLE QUANTITY FULL DEPTH PATCH (HIGH .....     | 185 |
| EARLY STRENGTH CONCRETE) .....                                      | 185 |
| ITEM #0601273A – VARIABLE QUANTITY PARTIAL DEPTH PATCH .....        | 190 |
| ITEM #0601274A – VARIABLE QUANTITY SURFACE REPAIR .....             | 199 |
| CONCRETE .....  | 199 |
| ITEM #0601323A – MODIFY CONCRETE BEARING PAD.....                   | 200 |
| ITEM #0601954A – EPOXY INJECTION CRACK REPAIR.....                  | 202 |
| ITEM #0602007A – VARIABLE QUANTITY DEFORMED STEEL BARS.....         | 211 |
| ITEM #0602903A – DRILLING HOLES.....                                | 212 |
| ITEM #0602910A – DRILLING HOLES AND GROUTING DOWELS.....            | 213 |
| ITEM #0602980A – CLEAN AND COAT EXPOSED REINFORCING STEEL.....      | 214 |
| ITEM #0603061A – STRUCTURAL STEEL (SITE NO. 1) .....                | 217 |
| ITEM #0603062A – STRUCTURAL STEEL (SITE NO. 2) .....                | 217 |
| ITEM #0603063A – STRUCTURAL STEEL (SITE NO. 3) .....                | 217 |
| ITEM #0603064A – STRUCTURAL STEEL (SITE NO. 4) .....                | 217 |
| ITEM #0603081A – STRUCTURAL STEEL REPAIRS (SITE NO. 1) .....        | 225 |
| ITEM #0603082A – STRUCTURAL STEEL REPAIRS (SITE NO. 2) .....        | 225 |
| ITEM #0603083A – STRUCTURAL STEEL REPAIRS (SITE NO. 3) .....        | 225 |
| ITEM #0603084A – STRUCTURAL STEEL REPAIRS (SITE NO. 4) .....        | 225 |
| ITEM #0603222A – DISPOSAL OF LEAD DEBRIS FROM ABRASIVE .....        | 228 |
| BLAST CLEANING.....   | 228 |
| ITEM #0603432A – STRUCTURAL PIN ASSEMBLY (STAINLESS .....           | 235 |
| STEEL) .....  | 235 |

|   |     |
|---|-----|
| ITEM #0603479A – ABRASIVE BLAST CLEANING AND FIELD .....      | 237 |
| PAINTING OF BEAM ENDS (SITE NO. 1) .....                      | 237 |
| ITEM #0603480A – ABRASIVE BLAST CLEANING AND FIELD .....      | 237 |
| PAINTING OF BEAM ENDS (SITE NO. 2) .....                      | 237 |
| ITEM #0603481A – ABRASIVE BLAST CLEANING AND FIELD .....      | 237 |
| PAINTING OF BEAM ENDS (SITE NO. 3) .....                      | 237 |
| ITEM #0603482A – ABRASIVE BLAST CLEANING AND FIELD .....      | 237 |
| PAINTING OF BEAM ENDS (SITE NO. 4) .....                      | 237 |
| ITEM #0603563A – CLASS 1 CONTAINMENT AND COLLECTION OF .....  | 250 |
| SURFACE PREPARATION DEBRIS (SITE NO. 1) .....                 | 250 |
| ITEM #0603564A – CLASS 1 CONTAINMENT AND COLLECTION OF .....  | 250 |
| SURFACE PREPARATION DEBRIS (SITE NO. 2) .....                 | 250 |
| ITEM #0603714A – CLASS 1 CONTAINMENT AND COLLECTION OF .....  | 250 |
| SURFACE PREPARATION DEBRIS (SITE NO. 3) .....                 | 250 |
| ITEM #0603715A – CLASS 1 CONTAINMENT AND COLLECTION OF .....  | 250 |
| SURFACE PREPARATION DEBRIS (SITE NO. 4) .....                 | 250 |
| ITEM #0603729A – LOCALIZED PAINT REMOVAL AND FIELD .....      | 255 |
| PAINTING OF EXISTING STEEL .....                              | 255 |
| ITEM #0603871A – REMOVAL OF EXISTING STRUCTURAL STEEL .....   | 262 |
| ITEM #0651289A – GROUT FILL STORM PIPE .....                  | 264 |
| ITEM #0707009A – MEMBRANE WATERPROOFING (COLD LIQUID .....    | 265 |
| ELASTOMERIC) .....  | 265 |
| ITEM #0819002A – PENETRATING SEALER PROTECTIVE COMPOUND ..... | 272 |
| ITEM #0822005A – TEMPORARY PRECAST CONCRETE BARRIER .....     | 275 |
| CURB (STRUCTURE) .....  | 275 |
| ITEM #0822006A – RELOCATED TEMPORARY PRECAST CONCRETE .....   | 275 |
| BARRIER CURB (STRUCTURE) .....                                | 275 |
| ITEM #0904103A – REPAIR METAL BRIDGE RAIL .....               | 279 |
| ITEM #0904900A – METAL BRIDGE RAIL PROTECTIVE FENCE .....     | 282 |
| ITEM #0904987A – REMOVE AND RESET METAL BRIDGE RAIL .....     | 285 |
| ITEM #0969054A – CONTRACTOR QUALITY CONTROL PROGRAM .....     | 286 |
| LEVEL 1 .....   | 286 |
| ITEM #0969064A – CONSTRUCTION FIELD OFFICE, LARGE .....       | 295 |
| ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC .....  | 303 |
| ITEM #0974105A – CONCRETE HAUNCH REMOVAL .....                | 336 |
| ITEM #1014901A – REMOVE CABLE .....                           | 338 |
| ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX .....    | 339 |
| RETROREFLECTIVE SHEETING) .....                               | 339 |
| ITEM #1806226A – PRE-WARNING VEHICLE .....                    | 341 |
| PERMITS AND/OR REQUIRED PROVISIONS: .....                     | 343 |

AUGUST 19, 2020  
FEDERAL AID PROJECT NOS. 0008 (145) & 0008(146)  
STATE PROJECT NOS. 151-333 & 151-334

REHABILITATION OF BRIDGE NOS. 03176 & 03177  
ROUTE 8 SB/NB OVER NAUGATUCK RIVER  
REHABILITATION OF BRIDGE NOS. 03178 & 03179  
ROUTE 8 SB/NB OVER METRO NORTH RAILROAD

City of Waterbury  
Federal Aid Project No. 0008(145) & 0008(146)

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020 (otherwise referred to collectively as "ConnDOT Form 818") is hereby made part of this contract, as modified by the Special Provisions contained herein. Form 818 is available at the following DOT website link [https://portal.ct.gov//media/DOT/documents/dconstruction/specs\\_section/000\\_Form818\\_2020 Printable-\(1\).pdf?la=en](https://portal.ct.gov//media/DOT/documents/dconstruction/specs_section/000_Form818_2020_Printable-(1).pdf?la=en). The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Manual is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=2288&q=259258>. The Special Provisions relate in particular to the Rehabilitation of Bridge Nos. 03176 & 03177 Route 8 SB/NB over Naugatuck River and Rehabilitation of Bridge Nos. 03178 & 03179 Route 8 SB/NB over Metro North Railroad in the City of Waterbury.

## **COMBINED PROJECTS**

There will be but one Contract for Federal Aid Project No. 0008(145) (State Project No. 151-333) and Federal Aid Project No. 0008(146) (State Project No. 151-334). The two projects will be considered as a single contract in all respects.

## **CONTRACT TIME AND LIQUIDATED DAMAGES**

Two Hundred Forty-Four (244) calendar days will be allowed for completion of the work on this Contract and the liquidated damages charge to apply will be Three Thousand Seven Hundred Dollars (\$3,700) per calendar day.

In order to minimize the hazard, cost and inconvenience to the traveling public and pollution of the environment, it is necessary to limit the time of construction work, which interferes with traffic as specified in Article 1.08.04 of the Special Provisions.

There will be two assessments for liquidated damages and they will be addressed in the following manner:

1. For this contract, an assessment per day for liquidated damages, at a rate of \$3,700 Dollars per day shall be applied to each calendar day the work that runs in excess of the Two Hundred Forty-Four (244) allowed calendar days for the contract.
2. For this contract, an assessment per hour for liquidated damages shall be applied to each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours given in Article 1.08.04 of the Special Provisions. The liquidated damages shall be as shown in the following tables entitled “Liquidated Damages Per Hour” for each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours.

For the purpose of administering this contract, normal traffic operations are considered interfered with when:

1. Any portion of the travel lanes or shoulders is occupied by any personnel, equipment, materials, or supplies including signs.
2. The transition between the planes of pavement surfaces is at a rate of one inch in less than fifteen feet longitudinally.

**LIQUIDATED DAMAGES PER HOUR****Project Nos. 151-333/334**

| Bridge Nos. 03177 & 03179 – Route 8 North between Exit 6<br>(Route 25) off-ramp to Exit 33 (I-84) on-ramp<br>2 Through Lane Section |                        |                        |
|---|------------------------|------------------------|
| If Working Periods<br>Extends Into  | A.M.<br>1 Lane Closure | P.M.<br>1 Lane Closure |
| 1st Hour of<br>Restrictive Period   | \$ 500                 | \$ 1,000               |
| 2nd Hour of<br>Restrictive Period   | \$ 500                 | \$ 10,000              |
| 3rd Hour or any<br>Subsequent Hour of<br>Restrictive Period   | \$ 1,000               | \$ 45,000              |

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “2” or “E”.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of \$500 per hour shall apply if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of \$500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

**LIQUIDATED DAMAGES PER HOUR****Project Nos. 151-333/334**

| Bridge Nos. 03176 & 03178 – Route 8 South between Exit 6<br>(Route 25) on-ramp to Exit 31 (I-84) on-ramp<br>2 Through Lane Section |                        |                        |
|--|------------------------|------------------------|
| If Working Periods<br>Extends Into   | A.M.<br>1 Lane Closure | P.M.<br>1 Lane Closure |
| 1st Hour of Restrictive<br>Period  | \$ 9,000               | \$ 1,000               |
| 2nd Hour of Restrictive<br>Period  | \$ 40,000              | \$ 3,000               |
| 3rd Hour or any<br>Subsequent Hour of<br>Restrictive Period  | \$ 60,000              | \$ 6,000               |

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “2” or “E”.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of \$500 per hour shall apply if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of \$500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

## **PRE-BID SITE VISIT – METRO NORTH**

A Pre-Bid Site Visit for Project 0151-0334 located within Metro North Railroad's ROW will be held on **Wednesday 09/30/20 at 10.00 A.M.** Prospective bidders shall meet in **Waterbury, Connecticut** at the **Entrance Gate for 210 Municipal Road (City of Waterbury Treatment Plant)**.

Prospective bidders will be escorted through the railroad right-of-way to the Site.

Work for this Project involves areas that are in the railroad right-of-way and access to the area is restricted. Therefore, all potential bidders are strongly encouraged to attend this Pre-Bid Site Visit. **There will be no other opportunity afforded to bidders to inspect the Project site.**

The Pre-Bid Site Visit will include a review of the Site, the limitation of operations, and necessary compliance with Metro-North Railroad requirements for the Project.

All attendees must wear hard hats, safety vests, safety glasses, and safety shoes at the Pre-Bid Site Visit. Those without proper safety gear will not be allowed on MNR property. All attendees must also maintain COVID-19 related protocols including social distancing and wearing of masks.

**All attendees must be Metro North Railroad Safety trained. Online training is available by visiting <https://contractororientation.com/Default.asp>. Metro North Railroad Safety certification ID cards will need to be presented to the Conductor Flagman during the Pre-Bid Site Visit Safety Briefing. Attendees without a Metro North Railroad Safety certification ID card will not be allowed to enter the railroad right-of-way.**

**Those planning to attend must submit an email with the company information to [DOTContracts@ct.gov](mailto:DOTContracts@ct.gov) mailbox contact by 3.30 P.M. on Friday 09/25/20 for confirmation. You must provide your name, name of firm, phone number, and number of attendees.**

Bidders are advised that no questions will be entertained at the Pre-Bid Site Visit. All questions shall be submitted using the procedures explained in "[NOTICE TO CONTRACTOR – PRE-BID QUESTIONS AND ANSWERS](#)." All questions must be submitted no later than 4.00 P.M., on Friday, 10/02/20.

## **NOTICE TO CONTRACTOR – PRE-BID QUESTIONS AND ANSWERS**

Questions pertaining to DOT advertised construction projects must be presented through the CTDOT Pre-Bid Q and A Website. The Department cannot guarantee that all questions will be answered prior to the bid date. **PLEASE NOTE - at 9:00 am Monday (i.e. typical Wednesday Bid Opening) the project(s) being bid will be closed for questions, at which time questions can no longer be submitted through the Q and A Website.**

**Answers may be provided by the Department up to 12:00 noon, the day before the bid. At this time, the Q and A for those projects will be considered final, unless otherwise stated and/or the bid is postponed to a future date and time to allow for further questions and answers to be posted.**

If a question needs to be asked the day before the bid date, please contact the Contracts Unit staff and email your question to [dotcontracts@ct.gov](mailto:dotcontracts@ct.gov) immediately.

Contractors must identify their company name, contact person, contact email address and phone number when asking a question. The email address and phone number will not be made public.

The questions and answers (if any) located on the Q and A Website are hereby made part of the bid/contract solicitation documents (located on the State Contracting Portal), and resulting contract for the subject project(s). It is the bidder's responsibility to monitor, review, and become familiar with the questions and answers, as with all bid requirements and contract documents, prior to bidding. By signing the bid proposal and resulting contract, the bidder acknowledges receipt of, and agrees to the incorporation of the final list of Q and A, into the contract document.

Contractors will not be permitted to file a future claim based on lack of receipt, or knowledge of the questions and answers associated with a project. All bidding requirements and project information, including but not limited to contract plans, specifications, addenda, Q and A, Notice to Contractors, etc., are made public on the State Contracting Portal and/or the CTDOT website.

## **NOTICE TO CONTRACTOR - CONTRACT DURATION**

The Contractor is hereby notified that this is not to be considered an ordinary project by any means and that due to the inconvenience to the traveling public that it causes, extra manpower, equipment and work shifts may be required to complete the work in accordance within the specified contract time.

## **NOTICE TO CONTRACTOR – COMPASS SUBMITTALS**

Upon execution of the Contract, the Contractor acknowledges and agrees that contractual submittals for this Project shall be submitted and handled through the Department's project management system, COMPASS.

Contractor submittals including, but not limited to, Shop Drawings, Working Drawings, Product Data, RFIs, and RFCs shall be generated and delivered by the Contractor in accordance with the Department's [COMPASS Contractor's User Manual](#). The administering District office will inform the Contractor of other deliverables required to be similarly submitted.

Access credentials for COMPASS will be provided free of charge to the Contractor.

The Department shall not be held responsible for delays, lack of processing or responses to submittals that do not follow the specified guidelines in the COMPASS Contractor's User Manual.

# NOTICE TO CONTRACTOR – FEDERAL WAGE DETERMINATIONS (Davis Bacon Act)

The following Federal Wage Determinations are applicable to this Federal- Aid contract and are hereby incorporated by reference. During the bid advertisement period, it is the bidder’s responsibility to obtain the latest Federal wage rates from the US Department of Labor website, as may be revised 10 days prior to bid opening. Any revisions posted 10 days prior to the bid opening shall be the wage determinations assigned to this contract.

| Check<br>Applicable<br>WD#<br>(DOT Use<br>Only) | WD#  | Construction Type                | Counties  |
|---|------|----------------------------------|---|
| X   | CT1  | Highway                          | Fairfield, Litchfield, Middlesex, New Haven, Tolland, Windham |
|   | CT2  | Highway                          | New London  |
|   | CT3  | Highway                          | Hartford  |
|   | CT5  | Heavy Dredging (Hopper Dredging) | Fairfield, Middlesex, New Haven, New London                   |
|   | CT6  | Heavy Dredging                   | Statewide   |
|   | CT13 | Heavy                            | Fairfield   |
|   | CT14 | Heavy                            | Hartford  |
|   | CT15 | Heavy                            | Middlesex, Tolland  |
|   | CT16 | Heavy                            | New Haven   |
|   | CT17 | Heavy                            | New London  |
|   | CT26 | Heavy                            | Litchfield, Windham   |
|   | CT18 | Building                         | Litchfield  |
|   | CT19 | Building                         | Windham   |
|   | CT20 | Building                         | Fairfield   |
|   | CT21 | Building                         | Hartford  |
|   | CT22 | Building                         | Middlesex   |
|   | CT23 | Building                         | New Haven   |
|   | CT24 | Building                         | New London  |
|   | CT25 | Building                         | Tolland   |
|   | CT4  | Residential                      | Litchfield, Windham   |
|   | CT7  | Residential                      | Fairfield   |
|   | CT8  | Residential                      | Hartford  |
|   | CT9  | Residential                      | Middlesex   |
|   | CT10 | Residential                      | New Haven   |
|   | CT11 | Residential                      | New London  |
|   | CT12 | Residential                      | Tolland   |

The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (<http://www.wdol.gov/dba.aspx>) as may be revised 10 days prior to bid opening. The Department will no longer physically include revised Federal wage rates in the bid documents or as part of addenda documents. These applicable Federal wage rates will be incorporated in the final contract document executed by both parties.

If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

To obtain the latest Federal wage rates, go to the US Department of Labor website (link above). Under Davis-Bacon Act, choose “Selecting DBA WDs” and follow the instruction to search the latest wage rates for the State, County and Construction Type.

**NOTICE TO CONTRACTOR – MINIMUM CONCRETE COMPRESSIVE STRENGTH**

The concrete strength or allowable design stress specified in the General Notes is for design purposes only. The minimum compressive strength of concrete in constructed components shall comply with the requirements of Section 6.01 Concrete for Structures.

## **NOTICE TO CONTRACTOR – PORTLAND CEMENT CONCRETE (PCC) MIX CLASSIFICATIONS**

### ***SECTIONS 6.01 and M.03 MIX CLASSIFICATION EQUIVALENCY***

Sections 6.01 *Concrete for Structures* and M.03 *Portland Cement Concrete* have been revised to reflect changes to item names and nomenclature for standard Portland cement concrete (PCC) mix classifications. Special Provisions, plan sheets and select pay items in this Contract may not reflect this change. Refer to the Concrete Mix Classification Equivalency Table below to associate the Concrete Mix Classifications with Former Mix Classifications that may be present elsewhere in the Contract.

**Concrete Mix Classification Equivalency Table**

| New Mix Classification<br>(Class PCCXXXYZ <sup>1</sup> ) | Former Mix Classification |
|--|---------------------------|
| Class PCC03340   | Class “A”                 |
| Class PCC03360   | Class “C”                 |
| Class PCC04460 <sup>2</sup>                              | Class “F”                 |
| Class PCC04462 <sup>2</sup>                              | High Performance Concrete |
| Class PCC04481,<br>PCC05581                              | Class “S”                 |

Table Notes:

1. See Table M.03.02-1, Standard Portland Cement Concrete Mixes, for the new Mix Classification naming convention.
2. Class PCC04462 (formerly Class “HP1” Concrete; also called low permeability concrete) is to be used for the following cast-in-place bridge components: decks, bridge sidewalks, and bridge parapets.

Where called for in the Contract, **Low Permeability Concrete** shall be used, as specified in Sections 6.01 and M.03. Please pay special attention to the requirements for Class PCC04462, including:

- Submittal of a mix design developed by the Contractor and a concrete supplier **at least 90 days prior to placing the concrete**
- Testing and trial placement of the concrete mix is to be developed and discussed with the Department

The Department will not consider any requests for change to eliminate the use of Low Permeability Concrete on this Project.

## **NOTICE TO CONTRACTOR – CAS CERTIFICATION FOR ABRASIVE BLAST CLEANING AND COATING WORK**

This Contract requires abrasive blast cleaning and coating work be done with at least one (1) Coating Application Specialist per four (4) craft-workers. Coating Application Specialist (CAS) certification is available through the Society for Protective Coatings (SSPC). The CAS program is based on the requirements of SSPC ACS-1/NACE 13, a standard published jointly in 2008 by SSPC and NACE International (National Association of Corrosion Engineers). ACS-1 defines training and experience requirements that tradespersons must have in order to qualify to be assessed for certification. CAS QP-1 implementation requires that the CAS Level II certified applicator be on the job during abrasive blast cleaning and painting operations.

The firm proposed to perform abrasive field blast cleaning and coating on this Project must meet the requirements outlined in the special provisions under “Contractor - Subcontractor Qualifications.”

When applicable, the shop painting firm proposed to perform abrasive blast cleaning and shop painting on this Project must meet the requirements outlined in the special provisions under “Qualifications of Shop Painting Firm.”

## **NOTICE TO CONTRACTOR – ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATINGS**

This Contract includes the application of materials subject to the Volatile Organic Compounds (VOC) content limits stated in the Regulations of Connecticut State Agencies (RCSA) Sections 22a-174-41 and -41a. All architectural and industrial maintenance (AIM) coatings and applications of such coatings must comply with these regulations.

The Contractor shall submit a Material Safety Data Sheet/Safety Data Sheet or Product Technical Data Sheet developed by the manufacturer of each material that may be subject to the Regulations. The submittal must verify both the type of AIM and its VOC Content. VOC content shall be determined based on the formulation data supplied by the materials manufacturer.

The Contractor may only use AIM coatings that contain VOCs below the respective coating category Phase II limits specified in Table 1 if either:

- a) the coating was manufactured on or after May 1, 2018, **or**
- b) the coating is being applied after April 30, 2021.

The Contractor may use AIM coatings that contain VOCs exceeding the respective coating category Phase II limits specified in Table 1 only if all of the following four conditions are met:

- a) the coating is being applied on or before April 30, 2021,
- b) the coating contains VOCs below the applicable Phase I limits specified in Table 1,
- c) the coating was manufactured prior to May 1, 2018, **and**
- d) the coating container(s) are dated (or date coded) as such.

For any coating that is not categorized within Table 1, the Contractor shall classify the coating as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of  $\geq 15$  on an 85-degree meter and  $\geq 5$  on a 60-degree meter) - Nonflat Coating,
- Registers gloss of  $\geq 70$  on a 60-degree meter - Nonflat-High Gloss Coating.

The Contractor must close all containers of coating and solvent when not in use.

Coating container labels must display the date the coating was manufactured, the manufacturer's recommendation regarding thinning with solvent, and the coating's VOC content in grams per liter (g/L) of coating. Certain coating categories as noted in Table 1 have additional labeling requirements.

The Contractor may add additional solvent to a coating only if such addition does not cause the coating to exceed the applicable VOC limit specified Table 1. The Contractor must adhere to type(s) of solvent and maximum amount of solvent recommended by coating manufacturer. VOC content of a thinned coating shall be the VOC content as listed by the manufacturer after thinning in accordance with its recommendation.

| <b>TABLE 1</b>  |  |   |
|---|--|---|
| <b>Coating Category</b>   | <b>Phase I</b>   | <b>Phase II</b>   |
|   | <b>manufactured prior to<br/>May 1, 2018<br/>VOC content limit (g/L)</b> | <b>manufactured on or<br/>after May 1, 2018<br/>VOC content limit (g/L)</b> |
| <b>Aluminum roof coating</b>  | --- <sup>1</sup>   | 450   |
| <b>Antenna coating</b>  | 530  | --- <sup>1</sup>  |
| <b>Antifouling coating</b>  | 400  | --- <sup>1</sup>  |
| <b>Basement specialty coating</b>   | --- <sup>1</sup>   | 400   |
| <b>Bituminous roof coating</b>  | 300  | 270   |
| <b>Bituminous roof primer</b>   | 350  | 350   |
| <b>Bond breaker</b>   | 350  | 350   |
| <b>Calcimine recoater</b>   | 475  | 475   |
| <b>Clear wood coating - Clear brushing lacquer<sup>2</sup></b>                  | 680  | 275   |
| <b>Clear wood coating - Lacquer<sup>2,3</sup></b>                               | 550  | 275   |
| <b>Clear wood coating - Sanding sealer<sup>2,4</sup></b>                        | 350  | 275   |
| <b>Clear wood coating - Varnish<sup>2</sup></b>                                 | 350  | 275   |
| <b>Concrete curing compound</b>   | 350  | 350   |
| <b>Concrete or masonry sealer/<br/>Waterproofing concrete or masonry sealer</b> | 400  | 100   |
| <b>Concrete surface retarder</b>  | 780  | 780   |
| <b>Conjugated oil varnish</b>   | --- <sup>1</sup>   | 450   |
| <b>Conversion varnish</b>   | 725  | 725   |
| <b>Driveway sealer</b>  | --- <sup>1</sup>   | 50  |
| <b>Dry fog coating</b>  | 400  | 150   |
| <b>Faux finishing coating<sup>2</sup></b>                                       | 350  | 350   |
| <b>Fire resistive coating</b>   | 350  | 350   |
| <b>Fire retardant coating - Clear</b>   | 650  | --- <sup>1</sup>  |
| <b>Fire retardant coating - Opaque</b>  | 350  | --- <sup>1</sup>  |
| <b>Flat coating</b>   | 100  | 50  |
| <b>Floor coating</b>  | 250  | 100   |
| <b>Flow coating</b>   | 420  | --- <sup>1</sup>  |
| <b>Form-release compound</b>  | 250  | 250   |
| <b>Graphic arts coating (sign paint)</b>  | 500  | 500   |
| <b>High temperature coating</b>   | 420  | 420   |
| <b>Impacted immersion coating</b>   | 780  | 780   |
| <b>Industrial maintenance coating<sup>2</sup></b>                               | 340  | 250   |
| <b>Industrial maintenance coating</b>   | 340  | 250   |
| <b>Low solids coating</b>   | 120  | 120   |
| <b>Magnesite cement coating</b>   | 450  | 450   |
| <b>Mastic texture coating</b>   | 300  | 100   |
| <b>Metallic pigmented coating</b>   | 500  | 500   |

| <b>TABLE 1</b>   |  |   |
|--|--|---|
| <b>Coating Category</b>  | <b>Phase I</b>   | <b>Phase II</b>   |
|  | <b>manufactured prior to<br/>May 1, 2018<br/>VOC content limit (g/L)</b> | <b>manufactured on or<br/>after May 1, 2018<br/>VOC content limit (g/L)</b> |
| <b>Multi-color coating</b>                                     | 250  | 250   |
| <b>Nonflat coating</b>   | 150  | 100   |
| <b>Nonflat high gloss coating<sup>2</sup></b>                  | 250  | 150   |
| <b>Nuclear coating</b>   | 450  | 450   |
| <b>Pre-treatment wash primer</b>                               | 420  | 420   |
| <b>Primer, sealer and undercoater</b>                          | 200  | 100   |
| <b>Quick-dry enamel</b>  | 250  | --- <sup>1</sup>  |
| <b>Quick-dry primer, sealer and undercoater</b>                | 200  | --- <sup>1</sup>  |
| <b>Reactive penetrating carbonate stone sealer<sup>2</sup></b> | --- <sup>1</sup>   | 500   |
| <b>Reactive penetrating sealer<sup>2</sup></b>                 | --- <sup>1</sup>   | 350   |
| <b>Recycled coating</b>  | 250  | 250   |
| <b>Roof coating</b>  | 250  | 250   |
| <b>Rust preventive coating<sup>2</sup></b>                     | 400  | 250   |
| <b>Shellac Clear</b>   | 730  | 730   |
| <b>Shellac Opaque</b>  | 550  | 550   |
| <b>Specialty primer, sealer and undercoater<sup>2</sup></b>    | 350  | 100   |
| <b>Stain</b>   | 250  | 250   |
| <b>Stone consolidant<sup>2</sup></b>                           | --- <sup>1</sup>   | 450   |
| <b>Swimming pool coating</b>                                   | 340  | 340   |
| <b>Thermoplastic rubber coating and mastic</b>                 | 550  | 550   |
| <b>Traffic marking coating</b>                                 | 150  | 100   |
| <b>Traffic marking coating</b>                                 | 150  | 100   |
| <b>Tub and tile refinish</b>                                   | --- <sup>1</sup>   | 420   |
| <b>Waterproofing membrane</b>                                  | --- <sup>1</sup>   | 250   |
| <b>Waterproofing sealer</b>                                    | 250  | --- <sup>1</sup>  |
| <b>Wood coating<sup>2</sup></b>                                | --- <sup>1</sup>   | 275   |
| <b>Wood preservative</b>                                       | 350  | 350   |
| <b>Zinc-rich primer<sup>2</sup></b>                            | --- <sup>1</sup>   | 340   |

1 Classify as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of ≥15 on an 85-degree meter and ≥5 on a 60-degree meter) – Nonflat Coating
- Registers gloss of ≥70 on a 60-degree meter – Nonflat-High Gloss Coating

2 Container must be appropriately labeled. See RCSA 22a-174-41a

3 “Clear Wood Coating – Lacquer” includes lacquer sanding sealer

4 “Clear Wood Coating - Sanding Sealer” does not include lacquer sanding sealer

## **NOTICE TO CONTRACTOR – USE OF STATE POLICE OFFICERS**

The Department will reimburse services of State Police Officers as a direct payment to the Department of Emergency Services and Public Protection. Payment for State Police Officers must be approved by the Engineer. Any State Police Officers used by the Contractor for its convenience is the responsibility of the Contractor. A separate payment item for State Police Officers is not included in this Contract.

Any costs associated with coordination and scheduling of State Police Officers shall be included in the lump sum bid price for Item No. 0971001A – Maintenance and Protection of Traffic.

**NOTICE TO CONTRACTOR – FORM 818 ARTICLE 1.05.19 – FIELD  
ERECTOR PREQUALIFICATION**

The following requirements will be incorporated into 1.05 – Control of the Work to be included in Contracts as of the January 2021 Supplements to the Standard Specifications, Form 818:

**1.05.19—Field Erector Prequalification:** Contractors erecting structural steel for Department projects are required to possess the appropriate AISC Certified Steel Erector (CSE) Certification as follows.

1. For Department bridge and large sign installation projects, Contractors are required to possess the certification stated in the Contract. All Contractors performing structural steel work on new construction or rehabilitation work of bridges will be required to possess CSE certification with a Bridge Erection Endorsement.
2. For Department Facilities projects, CSE certification for Steel-Framed Buildings is required when erecting steel on both new and existing Facilities projects.

Those affected shall plan accordingly.

**NOTICE TO CONTRACTOR – 9.49 – FURNISHING, PLANTING AND  
MULCHING TREES, SHRUBS, VINES AND GROUND COVER PLANTS**

The Contractor is hereby notified that Section 9.49 of the *Standard Specifications* in Form 818 has been revised as follows:

1. The Contractor must secure an [Encroachment Permit](#) to work in the plantings area to satisfy the one year warranty requirements.
2. The Encroachment Permit requires a [Permit Bond](#).
3. The Contractor is responsible for the One-Year Establishment Period, 1 year from the date of final acceptance to the satisfactory completion of the planting activities.
4. The Contractor shall secure a Permit Bond in the amount of \$10,000 or 20% of the sum of all plant items, whichever is greater, along with an Encroachment Permit from the Department in order to guarantee the One-Year Establishment Period.

See Article 9.49.03-15 for more information.

## **NOTICE TO CONTRACTOR – FEDERAL RAIL SAFETY REGULATIONS (49 C.F.R. Part 219) CONCERNING ALCOHOL AND DRUG TESTING**

On October 16, 2008, the United States Congress enacted the Rail Safety Improvement Act of 2008 (RSIA). RSIA directs the Federal Railroad Administration (FRA) to promulgate new safety regulations related to railroad safety. The purpose of this NTC is to notify you of certain requirements recently promulgated by the FRA that may be applicable to work you are currently performing, or may in the future perform, for the Connecticut Department of Transportation (Department).

On June 10, 2016, the FRA published a final rule expanding the scope of its drug and alcohol testing regulations (FRA Regulations) to provide that “[e]ach railroad must ensure that a regulated employee is subject to being selected for random testing... whenever the employee performs regulated service on the railroad’s behalf.” 49 C.F.R. § 219.601. A “regulated employee” includes a contractor to a railroad or any individual who is performing activities for a railroad and includes those contractors, consultants or individuals who are deemed “maintenance-of-way” employees under 49 CFR Part 219 (See 49 C.F.R. § 219.5).

The term maintenance-of-way (MOW) employee, as used in 49 C.F.R. Part 219, is defined in 49 C.F.R. § 214.7 as “any employee...of a contractor to a railroad, whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal and communications systems, electric traction systems, roadway facilities or roadway maintenance machinery on or near track or with the potential of fouling a track, and flagmen and watchmen/lookouts.” (collectively, MOW Activities).

The final rule, which is **effective June 12, 2017**, requires contractors and consultants employing MOW employees to submit a Part 219 Compliance Plan to FRA **prior** to the effective date. Please consult the following link to the model drug and alcohol plan prepared by the FRA for guidance.

<https://www.fra.dot.gov/eLib/details/L02814>

The final rule mandates, among other things, the establishment of a random testing pool to ensure a testing rate of 50% of MOW employees for drugs and 25% of MOW employees for alcohol on an annual basis. For more information related to the requirements, please refer to:

<http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5&node=49:4.1.1.1.14>

Every contractor or consultant that is performing MOW Activities must comply with its obligations under 49 C.F.R. Part 219 to ensure that all MOW employees are being randomly tested for drugs and alcohol. Failure of a contractor or consultant to timely comply with the FRA Regulations may subject that firm to civil penalties. In addition, MetroNorth Railroad (MNR) has stated that contractors or consultants who do not comply with the FRA regulations will not be able to work on MNR property.

The Department strongly urges all contractors and consultants to consult with their attorneys and/or to conduct their own independent due diligence regarding the requirements imposed by the new FRA Regulations to determine what steps are necessary to assure compliance. The information provided herein is advisory in nature and is offered without warranty of any kind. The Department does not accept any responsibility or liability for the accuracy, content, completeness, legality, or reliability of the information contained herein.

Any questions regarding the FRA Regulations concerning drug and alcohol testing should be directed to: Mr. Gerald Powers, Drug and Alcohol Program Manager, Office of Safety Enforcement, Federal Railroad Administration, 1200 New Jersey Avenue SE, Mail Stop 25, Washington, DC 20590 or via telephone (202) 493-6313.

## **NOTICE TO CONTRACTOR – RAILROAD SPECIFICATIONS**

The contractor is hereby notified that all railroad specifications contained elsewhere herein shall be made a part of this contract, and that the contractor shall be bound to comply with all requirements of such specifications. The requirements and conditions set forth in the subject specifications shall be binding on the contractor just as any other specification would be.

## **NOTICE TO CONTRACTOR – RIGHTS OF WAY RESTRICTIONS**

The Contractor is hereby advised that at the time of advertising for bids not all the property may be acquired by the State, certain residences and/or business establishments had not been vacated, and asbestos removal by others from buildings to be disposed of had not been completed. A complete listing of the affected properties and the anticipated dates that they will become available is hereinafter provided. The Contractor is further advised that limitations, as enumerated herein below, are imposed which may interfere with the physical construction of the project. Following are statements which will set forth the restrictions on the right of entrance to property and conditions governing construction of the project.

1) The Contractor shall not occupy properties that are unacquired, perform any work thereon, or inhibit access thereto until the properties have been acquired and right of possession has been obtained. If the Contractor is allowed to proceed with the physical construction of the project, no action will be taken that will result in unnecessary inconvenience such as the discontinuance of utilities, the prevention of ingress and egress to the property, or will result in disproportionate injury or any action coercive in nature to occupants of residences (businesses, farms, or non-profit organization) who have not yet moved from the right-of-way.

2) It should be anticipated that each of the properties listed herein may be considered to have an effect upon construction operations.

3) The Contractor shall be aware that extensions of time will be granted, if necessary, for delays in construction operations caused by continued occupancy of residences, properties being unacquired or asbestos abatement concluding beyond the estimated time period.

The following is a complete listing of properties which have not been acquired, vacated and asbestos abated as of August 5<sup>th</sup>, 2020 with the anticipated dates such properties will be acquired and/or vacated and abated.

| Serial No.       | Type     | Name  | Location  |
|------------------|----------|---|---|
| # 0151-0333<br>1 | Easement | City of Waterbury (Title Estimate by September 15, 2020)                            | No Baseline tiedowns, access along existing driveway.   |
| # 0151-0334<br>1 | Easement | Boston and Maine Corporation (Title Estimate by September 15, 2020)                 | 199+50± to 200+75± Left of Baseline Route 8 Southbound  |
| # 0151-0334<br>2 | Easement | Materials Innovation and Recycling Authority (Title Estimate by September 15, 2020) | 200+75± to 201+00± Left of Baseline Route 8 Southbound. |
| # 0151-0334<br>3 | Easement | Vincent B. Lorusso, Sr., et al (Title Estimate by September 15, 2020)               | 201+00± to 202+00± Left of Baseline Route 8 Southbound  |

## **NOTICE TO CONTRACTOR – ELECTRONIC ENGINEERING DATA (EED)**

The EED is an assembly of engineering data files that were used to produce the Contract plans.

**Electronic Engineering Data (EED) is provided for information purposes only. In case of conflict between the EED and the Contract plans and specifications, the contract plans and specifications shall govern.** The EED has been reviewed by the Department for quality control purposes, but it is the Contractor's responsibility to build the Project per the contract plans and specifications.

The EED is being provided to the Engineer for GPS/RTS inspection. The Contractor may use the EED to assist in bidding, layout and Automated Machine Control/Guidance.

The EED includes geospatially-correct 2D CAD files and may include horizontal and vertical alignment data files, 3D surface model files (break-line features and triangles) and a preference file. The data is being provided in two formats:

- Native Format
  - Bentley MicroStation CAD files (dgn)
  - Bentley SS2 InRoads Alignment Files (alg)
  - Bentley SS2 InRoads Digital Terrain Models (dtm)
  - Bentley SS2 InRoads Preference File (xin)
- Converted Format (for use in GPS/RTS Site equipment)
  - AutoCAD CAD files (dxf)
  - Alignment files (xml)
  - Surface Models (xml)

For a complete list of EED files, see the EED file manifest (PDF) located in the EED\_151-334.zip file (151-334 is the project number) which is posted with the contract PS&E's on the State Contracting portal.

## **NOTICE TO CONTRACTOR – 1.05 CONTROL OF THE WORK**

### **1.05.03 – CONFORMITY WITH PLANS AND SPECIFICATIONS (INCLUDING QUALITY CONTROL)**

The Contractor is hereby notified that a Quality Management Plan will be required for this Project in accordance with Standard Specifications Article 1.05.03 – Conformity with Plans and Specifications (including Quality Control).

## **NOTICE TO CONTRACTOR – QUALITY CONTROL PROGRAM**

### **ITEM #0969054A CONTRACTOR QUALITY CONTROL PROGRAM LEVEL 1**

This Contract includes the above-noted item and special provision for Contractor Quality Control Program, developed to supplement Article 1.05.03 of the standard specifications.

A minimum lump sum bid amount is included within the special provision.

The Contractor must be aware that the special provision requires that a Quality Control Manager (QCM) be proposed to the Department within thirty (30) days after Contract Award and that the written QC Program be submitted to the Department within forty-five (45) days after Contract Award.

The Contractor must also be aware of the staffing, inspection, reporting and all other requirements of the special provision.

## **NOTICE TO CONTRACTOR – EXISTING DOT ELECTRICAL FACILITIES**

The Contractor is hereby advised that Bridges No. 03176, 03177, 03178 & 03179 contain existing illumination conduits (with active lighting conductors), junction boxes, and light standard anchorages cast into the parapets and wingwalls.

Existing illumination conduit and conductors contained within the bridge parapet/wingwalls shall be maintained in service during construction. The Contractor shall carry out his work in such a manner as to avoid causing damage to existing conduits and lighting circuitry. Accommodation of these existing conduits shall be addressed in working drawings for girder jacking, including all corrective and repair procedures which may be necessary. It is the Contractor's responsibility to review the existing conduit system cast into the bridge parapets and to determine if the girder jacking procedure will cause damage to the conduit system. The Contractor shall inform the Engineer if damage to electrical conduits will result from the jacking procedure so that further corrective/repair procedures can be developed. Failure to notify the Engineer of expected damage to illumination facilities will result in the Contractor being held responsible to repair the facility at his own expense. Under no circumstances shall the proper nighttime operation of the highway lighting system be disrupted by the Contractor's work.

Additionally there are active underground highway lighting circuitry in the areas of the proposed metal guide rail installation and bridge attachment. The existing highway lighting circuits are 480 volt and are powered by existing lighting control cabinets at the following location:

5th Street & Charles Street, Exit 30, Waterbury CT 06708

Existing underground circuitry was installed under State project 0151-0111. Plans of the existing lighting system are available from ConnDOT Facilities Electrical Design Unit (860-594-2796) upon request.

Prior to the start of excavation, the Contractor shall contact "Call Before You Dig" and when required, ConnDOT District 4 Electrical Maintenance (203-264-9590) to request a mark-out of the existing underground circuits. It is the Contractor's responsibility to review the CBYD mark-outs to determine if there will be any conflict between the existing underground circuits and the proposed guide rail installation and bridge attachment (including posts and end anchors). If a conflict is anticipated, the Contractor shall notify the Engineer prior to beginning any excavation or guide rail installation so that a corrective procedure can be developed to address the conflict. The Contractor shall be held responsible for any damage to the illumination facilities caused by his work. All repairs or replacements due to damage by the Contractor shall be made at the Contractor's expense.

For information concerning the existing illumination system the Contractor shall contact Mr. Mark A. Russo of District 4 Electrical Maintenance at Cell: 203-910-1114 Office: 203-264-9590.

## **NOTICE TO CONTRACTOR – EXISTING IMS**

The Contractor is herein made aware of existing Incident Management System (IMS) conduit and appurtenances located on Route 8 Southbound. The fiber optic trunk line is located on the West parapet of Bridge No. 03176 and on the West parapet of Bridge No. 03178 in the vicinity of the project area. A service conduit is also located on the West parapet of Bridge No. 03176. The Contractor will be responsible for maintaining the existing conduits throughout the duration of the project.

The Contractor will be responsible for locating, verifying the location of and protecting all IMS below and above the ground. Prior to the start of construction, the Contractor shall contact “Call Before You Dig” and all utility within the towns along the project corridor. The Contractor shall also contact Robert Kennedy (860-594-3458) of ConnDOT Highway Operations at to mark out IMS conduit and appurtenances.

Any damage caused to the IMS conduit/equipment will be the responsibility of the Contractor and will be replaced by the Contractor at the Contractor’s expense, as directed by the Engineer. Mark out of the IMS will not relieve the Contractor of responsibility for repair of damage caused by the Contractor or the Contractor’s sub-contractors.

## **NOTICE TO CONTRACTOR – HAZARDOUS MATERIALS INVESTIGATIONS**

A limited hazardous materials site investigation has been conducted at Bridge Nos. 03176 & 03177 (Site Nos. 1 & 2), Route 8 SB & NB over Naugatuck River and Bridge Nos. 03178 & 03179 (Site Nos. 3 & 4), Route 8 SB & NB over Metro North Railroad in Waterbury, CT. The scope of inspection was limited to the representative components projected for impact.

Results of the survey identified no detectable amounts of lead in paint to be present on the structural steel/metal bridge components and concrete surfaces of Bridge Nos. 03166 & 03177. Since there were no detectable amounts of lead in the paint on any bridge surfaces, any potential waste stream would be non-hazardous, non-RCRA waste.

Lead paint is presumed present on the painted bridge surfaces of Bridge Nos. 03178 & 03179. Any painted non-metallic debris and/or paint waste to be generated at those bridges is presumed as RCRA/CT DEEP hazardous waste.

All steel and metal generated from work tasks (painted or not) shall be segregated and recycled as scrap metal at a scrap metal recycling facility. The recycling of scrap metal (regardless of lead paint concentration) is exempt from USEPA RCRA and CTDEEP Hazardous Waste Regulation.

Brittle white caulking between the metal railing supports and parapets walls at Bridge Nos. 03176, 03177, 03178 & 03179 was found to contain asbestos. Also, black insulation/coating on the west side of Bridge No. 03176 is presently presumed to contain asbestos. Other suspect caulking & bridge tars at the four (4) bridges were sampled and found to be non-detect for asbestos.

Universal Waste/Connecticut Regulated Waste in the forms of fluorescent/mercury vapor/halogen bulbs with ballasts were identified in the light poles at the 4 bridges, however they will not be impacted by the project.

Bird/pigeon guano accumulations were identified at Bridge Nos. 03176, 03177, 03178 & 03179.

No bloodborne pathogens (BBP) concerns (homeless activity, human feces, etc.) were identified at any of the 4 bridges.

The Contractor is hereby notified that these hazardous materials requiring special management or disposal procedures will be encountered during various construction activities conducted within the project limits. The Contractor will be required to implement appropriate health and safety measures for all construction activities impacting these materials. These measures shall include air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination and personnel training. **WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE**

TO SITE SPECIFIC HAZARDS ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Department, as Generator, will provide an authorized representative to sign all manifests and waste profile documentation required by disposal facilities for disposal of hazardous materials.

The Sections which shall be reviewed by the Contractor include the following:

- Item No. 0020905A – Lead Compliance for Abrasive Blast Cleaning & Miscellaneous Tasks
- Item No. 0603222A – Disposal of Lead Debris from Abrasive Blast Cleaning
- Item No. 0020801A – Asbestos Abatement
- Item No. 0020765A – Guano Abatement

The Contractor is alerted to the fact that a Department environmental consultant may be on site for abatement and related activities, to collect environmental samples (if necessary), and to observe site conditions for the State.

Information pertaining to the results of the limited hazardous materials investigation discussed can be found in the document listed below. This document shall be available for review electronically.

- HazMat Inspection Letter, Bridge Nos. 03176 & 03177 (Site Nos. 1 & 2), Route 8 SB & NB over Naugatuck River, Waterbury, CT, TRC Environmental Corporation, January 27, 2020.
- HazMat Inspection Letter, Bridge Nos. 03178 & 03179 (Site Nos. 3 & 4), Route 8 SB & NB over Metro North Railroad, Waterbury, CT, TRC Environmental Corporation, January 27, 2020.

## **NOTICE TO CONTRACTOR – PROCUREMENT OF MATERIALS**

Upon award, the Contractor shall proceed with shop drawings, working drawings, procurement of materials, and all other submittals required to complete the work in accordance with the contract documents.

## **NOTICE TO CONTRACTOR – WORK ON RAILROAD PROPERTY**

The Contractor acknowledges that work to be accomplished under this Contract is to be performed on Railroad territory, which consists of territory operated by Metro-North Commuter Railroad (Railroad). The Contractor's work must be accomplished simultaneously with ongoing daily railroad operations. Such operations include, but are not limited to, the passage of trains, storage of trains, flagging, inspection, repair, construction, reconstruction, and maintenance of the railroad right-of-way and facilities.

The Contractor is advised that the Railroad controls all activity in their respective right-of-way, and the Department expects that these conditions may cause delays and possibly a complete suspension of construction activity. If the Contractor is delayed or suspended in the completion of the work by railroad operations, the Contractor will be entitled to a time extension for every day that he can demonstrate that the delays affected the completion date of the contract. This extension of time will be considered non-compensable. The Contractor will not be entitled to any additional compensation for damages incurred for all direct and indirect costs including all delay and impact costs, and inefficiencies as a result of railroad operational delays.

Additionally, the Contractor is advised, that this contract contains periods reserved exclusively for work that must be performed by the Railroad and the contractor will not be allowed on the tracks or to interfere with Railroad while that work is conducted. The Railroad shall notify the Engineer upon completion of their work and the Engineer shall notify the contractor when work may resume.

The Contractor shall be responsible for the coordination of the work of his various subcontractors. The Contractor shall coordinate his operations with those of the Railroad Company in carrying out railroad force account work.

The Contractor's employees, and the employees of all subcontractors, who will be entering the jobsite within railroad territory, must undergo the new on-line railroad safety training program. The Contractor is responsible for ensuring that all employees on the jobsite have been trained. No additional compensation will be allowed to the Contractor for employees' time for taking this training. Refer to the special provisions and to Article 1.05.06 entitled "Cooperation with Utilities (Including Railroads)."

The Contractor must make his own arrangements with the Railroad for the use of railroad equipment or changes in railroad facilities made solely to facilitate the Contractor's operations. The expense incurred by making such arrangements shall not be a part of this contract.

All matters requiring Railroad Company approval or coordination shall be directed to:

Mr. David Willard  
Deputy Director - Capital Projects  
Metro-North Railroad Company  
525 Water Street, 3rd Floor  
Bridgeport, CT 06601

GENERAL INSURANCE INFORMATION FOR THE WATERBURY LINE:

For the purpose of complying with Section 1.03, the following information is provided:

Normal speed of passenger trains is 50 mph in the area of the work. Normal speed of freight is 30 mph in the area of the work.

In the Waterbury, CT area, there are in a 24-hour weekday period:

- (15) Scheduled Metro-North Passenger Trains
- (3) Extra Trains
- (0) Amtrak Trains
- (0) Freight Trains

## **NOTICE TO CONTRACTOR – PROTECTION OF EXISTING UTILITIES**

Existing utilities shall be maintained during construction except as specifically stated herein and/or noted on the plans and as coordinated with the utilities. The Contractor shall verify the location of underground, structure mounted and overhead utilities. Construction work within the vicinity of utilities shall be performed in accordance with current safety regulations.

The Contractor shall notify "Call Before You Dig", telephone 1-800-922-4455 for the location of public utility, in accordance with Section 16-345 of the Regulations of the Department of Utility Control.

Representatives of the various utility companies shall be provided access to the work, by the Contractor.

Contractors are cautioned that it is their responsibility to verify locations, conditions, and field dimensions of all existing features, as actual conditions may differ from the information shown on the plans or contained elsewhere in the specifications.

The Contractor shall notify the Engineer prior to the start of work and shall be responsible for all coordination with the Department. The Contractor shall allow the Engineer complete access to the work.

The Contractor shall be liable for all damages or claims received or sustained by any persons, corporations or property in consequence of damage to the existing utilities, their appurtenances, or other facilities caused directly or indirectly by the operations of the Contractor.

Any damage to any existing private and public utility, as a result of the Contractors operations, shall be repaired to the Utilities and Engineer's satisfaction at no cost to the State or the Utilities, including all materials, labor, etc., required to complete the repairs.

The Contractor's attention is directed to the requirements of Section 1.07.13 – "Contractor's Responsibilities for Adjacent Property and Services".

Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., water, sanitary, gas, electric ducts, communication ducts, etc., will be encountered and, if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation, as noted above.

## **NOTICE TO CONTRACTOR – SITE NUMBER DESIGNATIONS**

For the purposes of this contract, the following site designations shall apply:

### **BRIDGES (STATE PROJECT NO. 151-333)**

**Site No. 1:** Bridge No. 03176 – Route 8 SB over Naugatuck River

**Site No. 2:** Bridge No. 03177 – Route 8 NB over Naugatuck River

### **BRIDGES (STATE PROJECT NO. 151-334)**

**Site No. 3:** Bridge No. 03178 – Route 8 SB over Metro North Rail Road

**Site No. 4:** Bridge No. 03179 – Route 8 NB over Metro North Rail Road

## **NOTICE TO CONTRACTOR – VARIABLE QUANTITY ITEMS**

The Contractor is alerted to the fact that the Contract includes pay items which are considered to be variable quantity items, as identified below.

- The items include a combination of pay quantities necessary to complete the work as defined in the respective special provisions.
- The items will have a minimum and maximum range of quantities provided in the Contract.
- The Contractor shall base their bid price on the midpoint quantity given in the bid documents.
- A guaranteed minimum quantity will be paid to the Contractor for each Variable Quantity item, even if the actual measured quantity is less than the guaranteed minimum, unless the work is deleted from the Contract in its entirety in accordance with Article 1.09.05.
- For quantities in excess of the guaranteed minimum, but less than the estimated maximum, the Contractor will receive payment for the actual quantities using the unit prices bid.
- For quantities exceeding the estimated maximum, the Contractor shall receive approval from the Engineer prior to proceeding with the additional work. Payment for quantities authorized by the Engineer in excess of the estimated maximum will be administered in accordance with the special provision for Articles 1.04.02 and 1.04.03 of the Standard Specifications Form 818 found in this Contract.

### **Variable Quantity items:**

- a. Variable Quantity Full Depth Patch (High Early Strength Concrete)
- b. Variable Quantity Partial Depth Patch
- c. Variable Quantity Deformed Steel Bars
- d. Variable Quantity Surface Repair Concrete

## **NOTICE TO CONTRACTOR – VERIFICATION OF PLAN DIMENSIONS AND FIELD MEASUREMENTS**

The Contractor is responsible for verifying all dimensions before any work is begun. Dimensions of the existing structures shown on the plans are for general reference only; they are not guaranteed. The Contractor shall take all field measurements necessary to assure proper fit of the finished work and shall assume full responsibility for their accuracy. When Shop Drawings and/or Working Drawings based on field measurements are submitted for approval and/or review, the field measurements shall also be submitted for reference by the reviewer.

In the field, the Contractor shall examine and verify all existing and given conditions and dimensions with those shown on the plans. If field conditions and dimensions differ from those shown on the plans, the Contractor shall use the field conditions and dimensions and make the appropriate changes to those shown on the plans as approved by the Engineer. All field conditions and dimensions shall be so noted on the drawings submitted for approval.

There shall be no claim made against the Department by the Contractor for work pertaining to modifications required by any difference between actual field conditions and those shown by the details and dimensions on the contract plans. The Contractor will be paid at the unit price bid for the actual quantities of materials used or for the work performed, as indicated by the various items in the contract.

## **NOTICE TO CONTRACTOR – WATER TREATMENT PLANT SERVICE ROAD**

The Contractor is hereby notified that the Water Treatment Plant Service Road underneath both Site Nos. 1 and 2 shall not be obstructed at any time during construction. No materials or equipment shall be stored during daytime or overnight periods where the materials or equipment blocks the Service Road or access to the Service Road. Debris shield installed over the Service Road shall always maintain a minimum 14'-6" vertical clearance over the roadway. Any item dropped onto the roadway shall be quickly removed from the Service Road to allow the passage of water treatment plant vehicles to access to the landfill area.

## **SECTION 1.02 – PROPOSAL REQUIREMENTS AND CONDITIONS**

### **1.02.01—Contract Bidding and Award:**

After the first sentence of the third paragraph, add the Following:

In accordance with the provisions of the Construction Contract Bidding and Award Manual, bidders must be prequalified for 9 Intermediate Bridges, to be eligible to bid on this project. Bidders that are not prequalified for this work classification will not be approved to bid on this project.

## **SECTION 1.04 – SCOPE OF WORK**

### **1.04.02 – Changes in Quantities of Pay Items, Including Elimination of Such Items:**

*Replace Article 1.04.02 with the following:*

**1.04.02 – Changes in Quantities of Pay Items, Including Elimination of Such Items:** The quantities given in the original Contract for Contract pay items are only estimates of the quantities of those items that may be required for Project completion. (The quantities for given pay items in the original Contract are sometimes referred to herein as the “estimated quantities” or “original quantities.”) A change in the original quantity of a Contract pay item (whether an increase or decrease of the quantity) shall be deemed to have occurred when the Engineer explicitly orders said change of quantity or when the change of quantity has been necessitated by a construction order or other written direction issued by the Engineer to the Contractor.

A Contract pay item shall be deemed a Major Item if the item’s lump sum price in the original Contract, or its original quantity multiplied by its unit price in the original Contract, is equal to or greater than 10% of the original Contract’s total bid price. All other Contract items shall be deemed Minor Items.

The provisions of 1.04.03 herein shall govern changes in compensation related to a “significant change” in Contract work (as such changes are defined in 1.04.03) necessitated by a written order of the Engineer.

The provisions of 1.04.04 herein shall govern changes in compensation related to any differing site condition encountered by the Contractor that affects its performance of Contract work.

The provisions of 1.04.03 or 1.04.04 shall govern in any case in which they conflict with another provision of the Contract.

If the Engineer and the Contractor together determine that a particular change in compensation to the Contractor should be made due to a change in a Contract pay item quantity (including an item’s complete elimination), they may make that change in compensation by a written agreement to do so.

### **Changes in Quantities to Minor Items:**

**(a) Quantity Increases of More Than 25% over Original Quantity Excluding Variable Quantity Items:** This subsection does not apply to Variable Quantity Items. For all other minor items, if the actual quantity of work authorized and accepted by the Engineer under a Contract pay item exceeds the item’s original quantity by 25%, the Department will pay for the quantity in excess of 125% of the original quantity in one of the following three ways. (One-time fixed costs for which the Department has already reimbursed the Contractor in paying for 125% of the original quantity shall not be included in a calculation of the actual cost of the

excess units.)

- (1) Pay for the aggregate excess units on a cost-plus basis as provided in 1.09.04.
- (2) Adjust the unit price by the increase or decrease in the unit price for the excess units, which shall be the difference between the original Contract unit price and the actual unit cost (calculated on a cost-plus basis as provided in 1.09.04) of the excess units, said difference to be calculated as of the time when work under the item was completed.
- (3) Pay for the units in any other manner agreed on in writing by the Engineer and the Contractor.

If, however, the aggregate payment for the units in excess of 125% is less than \$25,000 (using the original Contract unit price for the calculation) the Engineer will not adjust that unit price.

**(b) Quantity Decreases of More Than 25% below Original Quantity Excluding Variable Quantity Items:** This subsection does not apply to Variable Quantity Items. For all other minor items, if the actual quantity of a Contract minor item authorized and accepted by the Engineer is less than 75% of the item's original quantity, the Engineer will not adjust the original Contract unit price for said item unless the Contractor makes a written request to the Engineer for such adjustment and the Engineer grants it in writing. If the Engineer grants such a request, the Engineer will adjust the price for each accepted unit of said item performed or provided in one of the following three ways:

- (1) Pay for the total item units actually performed or provided in the aggregate units on a cost-plus basis as provided in 1.09.04.
- (2) Adjust the unit price by any increase in the unit price for the deficit units, which shall be the difference between the original Contract unit price and the actual unit cost (calculated on a cost-plus basis as provided in 1.09.04) of the total units performed or provided, said difference to be calculated as of the time when work under the item was completed.
- (3) Pay for the item units performed or provided in any manner agreed on in writing by the Engineer and the Contractor.

In no instance however, shall the unit price paid for the number of units performed or provided, when their quantity has been decreased by more than 25% of the original quantity, be less than their original unit price; and in no instance shall the aggregate payment for such a decreased quantity of items be more than the Engineer would have paid for the performance or provision of 75% of the original quantity at the original unit price.

**(c) Quantity Increases over the Original Estimated Maximum Quantity:** If the actual quantity of work authorized and accepted by the Engineer under a Variable Quantity Item exceeds the estimated maximum quantity, the Department will pay for the quantity in excess of the estimated maximum in one of the following three ways. (One-time fixed costs for which the Department has already reimbursed the Contractor in paying for the Variable Quantity item estimated maximum quantity shall not be included in a calculation of the actual cost of the excess units.)

- (1) Pay for the aggregate excess units on a cost-plus basis as provided in 1.09.04.

- (2) Adjust the unit price by the increase or decrease in the unit price for the excess units, which shall be the difference between the original Contract unit price and the actual unit cost (calculated on a cost-plus basis as provided in 1.09.04) of the excess units, said difference to be calculated as of the time when work under the item was completed.
- (3) Pay for the units in any other manner agreed on in writing by the Engineer and the Contractor.  
If, however, the aggregate payment for the units in excess of estimated maximum quantity is less than \$25,000 (using the original Contract unit price for the calculation) the Engineer will not adjust that unit price.

Regarding treatment of eliminated Contract items, refer to 1.09.05 herein.

#### **1.04.03—Changes in Quantities and Significant Changes in the Character of Work:**

*Replace Article 1.04.03 with the following:*

#### **1.04.03—Changes in Quantities and Significant Changes in the Character of Work:**

- (i) The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the Project. Such changes in quantities and alterations shall not invalidate the Contract nor release the surety, and the Contractor agrees to perform the work as altered.
- (ii) If the alterations or changes in quantities significantly change the character of the work under the Contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the Contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Engineer may determine to be fair and equitable.
- (iii) If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided elsewhere in the Contract.
- (iv) The term "significant change" shall be construed to apply only to the following circumstances:
  - (A) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
  - (B) With the Exclusion of Variable Quantity Items (which will be dandled as specified in (C) below, when a Major Item of work, as defined elsewhere in the Contract, is increased in excess of 125% or decreased below 75% of the original Contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125% of original Contract item quantity, or in case of a decrease below 75%, to the actual amount of work performed.
  - (C) When a Variable Quantity Item is a Major Item of work, as defined elsewhere in the Contract, and the actual quantity of work authorized and accepted by the Engineer is

increased in excess of the original estimated maximum quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of the original estimated maximum quantity to the actual amount of work performed. Decreases below 75% of the original quantity do not apply to Variable Quantity Items. There will be a guaranteed minimum quantity for each Variable Quantity item that the Contractor will receive unless the work is deleted from the Contract in its entirety, in accordance with Article 1.09.05.

## **SECTION 1.05 – CONTROL OF THE WORK**

**Article 1.05.06—Cooperation with Utilities (Including Railroads) – is supplemented as follows:**

Add the following after the last paragraph:

### **“Special Requirements Regarding Work in Metro-North territory:”**

#### Description:

This section covers authority, definitions, regulatory requirements, traffic regulation and coordination of the Contractor’s work schedule with the operation of train service, construction equipment and safety requirements for working within railroad right-of-way, and provisions for storage of materials and equipment and worker safety rules. Subsequent to the Engineer’s Pre-construction meeting and prior to commencement to contract activities, a working on the railroad meeting will be held by the Engineer to emphasis these Specifications.

#### Permission to Enter Upon Railroad Property

Permission is hereby granted to the Contractor to enter property of the State, under the custody and control of the Department and managed by Metro-North Railroad (hereinafter called "Railroad"), a public benefit corporation and subsidiary of Metropolitan Transportation Authority (hereinafter called "MTA"). The purpose of this permission shall be solely for those outlined in this contract and under the following terms and conditions:

- I. Location and Access. Permission is hereby granted to the Contractor and its subcontractor(s), if any, to enter the property within the Project Limits identified on the Contract Plans (hereinafter called the "Property").
- II. Liability. The Contractor covenants and agrees to at all times indemnify, protect and save harmless the “Additional Insureds”, as defined under Article V, from and against any and all losses, damages, detriments, suits, claims, demands, costs, and charges which the “Additional Insureds” may directly or indirectly suffer, sustain, or be subjected to by or on account of the Contractors entry upon, occupancy or use of the Property, or the conduct thereon of the Contractor, its subcontractors, officers, employees, agents or invitees, whether such loss or damage be suffered or sustained by the “Additional Insureds” directly or persons (including employees of “Additional Insureds” or Corporations who may seek to hold the “Additional Insureds” liable therefore), and whether attributable to the fault, failure or negligence of the “Additional Insureds” or otherwise.
- III. Consideration. The Contractor will pay to the Railroad, the sum of Zero Dollars (\$0.00) for the right to enter upon the Property.

IV. Terms of Permit. The Railroad reserves the right to revoke this permission at any time. Unless subsequently modified, this shall begin with Notice to Proceed and shall end at Contract Completion Date at which time it shall expire automatically. Under no circumstances shall this temporary permission be construed as granting the Contractor any rights, title or interest of any kind or character in, on, or about the land or premises of MTA or Railroad thereafter. The Permittee agrees to notify the Railroad when use of the Property or work is completed.

V. Definitions of Terms and Permissible Abbreviations:

Authority of the Railroad Engineer - This supplements Article 1.05.01 in that all contract work upon or affecting railroad property, right-of-way or facilities, shall also be subject to the approval of the Senior Director, Capital Programs of the Railroad or his duly authorized representative, through coordination with the Engineer.

Additional Insureds - Those individuals or entities appearing under Article 1.03.07, Paragraph 15 of the Specifications.

Conductor/Flagman - A Railroad employee qualified on the Rules of the Operating Department and qualified on the physical characteristics of the portion of the railroad involved. He/she is the contact employee qualified to obtain the use of track. Each conductor/flagman will have the proper flagging equipment, up-to-date Railroad Operating Rules, Timetables and Safety Rules.

Coordination of Work - This supplements Article 1.05.06 in that the Contractor shall be responsible for the coordination of the work of his sub-contractors with respect to the railroad property, right-of-way or facilities.

Groundman - Class "A" employee of the Railroad's Power Department authorized to de-energize/re-energize and ground high tension power lines.

Horizontal Clearance Point - A point 10 feet from the centerline of a track.

Obstruction - An entering of the traffic envelope, also referred to as fouling.

Occupancy - Any use of track other than direct crossing.

On or Adjacent to - shall be interpreted to include space on, above and below the railroad right-of-way operated by the Railroad, as well as space on, above, and below adjacent property which the Railroad determines to affect the safe operations of service.

Qualified Railroad Employee - For the purpose of these specifications, a Qualified Railroad Employee is a Railroad employee qualified to remove track or tracks from service.

Railroad - Whenever the term "Railroad" is used without further qualification, it shall be taken to mean Metro-North Railroad.

Right-of-Way - The limits of railroad property on either side of tracks.

The Safety Rules - All work shall be performed in accordance with rules, regulations, procedures, and safe practices of the Railroad, FRA, OSHA, NESC and all other government agencies having jurisdiction over this project.

Track - The space between the rails plus not less than 4 feet outside each rail.

Traffic Envelope - The area encompassed by the vertical and the horizontal clearance points.

Vertical Clearance Point - A point 22 feet and 6 inches above the top of a running rail unless otherwise authorized by the Railroad.

Use of Track - Obtaining permission from the proper authority of the Railroad for track occupancy.

## **1 – Requirements for Performing Work on or Adjacent to the Railroad Right-of-Way**

### **(a) General**

- (1) The Contractor should note that the proposed work involves construction operations on or adjacent to property owned by State and operated by the Railroad. In working near an operating railroad, great care must be exercised, and the Railroad's safety rules must be strictly observed.
- (2) If while completing the work covered by this contract, the tracks or other facilities of the Railroad are endangered, the Contractor shall immediately do such work as directed by the Railroad through the Engineer to restore safety. Upon failure of the Contractor to carry out such orders immediately, the Railroad may take whatever steps as are necessary to restore safe conditions. The cost and expense to the Railroad of restoring safe conditions, or of any damage to the Railroad's trains, tracks or other facilities caused by the Contractor's or subcontractor's operations, shall be considered a charge against the Contractor and shall be paid for by him, or may be deducted from any monies due or that may become due him under this contract.

### **(b) Rules and Regulations**

- (1) Railroad traffic shall be maintained at all times, and the Contractor shall conduct all of his operations on or adjacent to the Railroad right-of-way fully within the rules, regulations, and requirements of the Railroad. The Contractor shall be responsible for acquainting himself with such requirements as the Railroad may demand. The

Contractor shall include in his bid any expenses occasioned by delay or interruption of his work by reason of the operation or maintenance of the Railroad facilities.

- (2) The Contractor shall obtain verification of the time and schedule of track occupancy from the Railroad before proceeding with any construction or demolition work on or adjacent to the Railroad right-of-way.
- (3) All work to be done on or adjacent to the Railroad right-of-way shall be performed by the Contractor in a manner satisfactory to the Railroad and shall be performed at such times and in such manner as not to interfere with the movement of trains or traffic upon the tracks of the Railroad. The Contractor shall use all necessary care to avoid accidents, damage, delay or interference with the Railroad's trains or property.
- (4) If deemed necessary by the Railroad, it may furnish or assign an inspector who will be placed on the work during the time the Contractor or any subcontractor is performing work under the contract on Railroad property.
- (5) Before proceeding with any construction or demolition work on or adjacent to the Railroad Right-of-Way, a pre-construction meeting shall be held at which time the Contractor shall submit plans, engineering computations, and a detailed description of his methods and procedures for accomplishing the specific construction work required under this contract, including methods of protecting Railroad traffic. When the submission contains engineering computations, the entire submittal package shall be prepared and stamped by Connecticut registered Professional Engineer for approval of the Railroad. Such approval shall not serve, in any way, to relieve the Contractor of his responsibility for the adequacy and safety of his methods and procedures for conducting the work.
- (6) The Contractor shall conduct his work and handle his equipment and materials in such manner that neither fouls a live track or wire line without the written permission of the Railroad.
- (7) Equipment shall be considered to be potentially fouling the track when located in such a position that its failure, with or without load, brings the equipment within the traffic envelope. No equipment shall be placed in this position without prior approval of the Railroad.
- (8) **Equipment of the Contractor to be used:**
  - (A) Equipment of the Contractor to be used adjacent to the tracks shall be in first-class condition so as to fully prevent failures of defective equipment that might cause delay in the operations of trains or damage to Railroad facilities. His equipment shall not be placed or put into operation adjacent to tracks without

first obtaining permission from the Railroad. Under no circumstances shall any equipment or materials be placed or stored within 25 feet from the near rail of a track in operation, unless approved, in advance, by the Railroad.

- (B) High rail equipment of the Contractor to be used on the tracks shall be subject to prior approval of the Railroad. The equipment must be inspected and approved in advance at the Railroad's facility by Railroad inspectors. The equipment inspection must be renewed every three months. All high rail equipment must meet current FRA regulations and Metro-North Railroad requirements.
- (C) On track vehicles shall be equipped with a Railroad approved tow bar and coupler. Multiple vehicles shall move in tandem and coupled when directed by the Railroad. Movement of on track vehicles shall proceed only under the direct supervision of a Qualified Railroad Employee.
- (9) Materials and equipment belonging to the Contractor shall not be stored on Railroad property without first having obtained permission from the Engineer and Railroad. Such permission will be on the condition that the Engineer and Railroad will not be liable for damage to such materials and equipment from any cause. The Contractor shall keep the tracks adjacent to the site clear of all refuse and debris that may accumulate from his operations and shall leave the Railroad property in the condition existing before the start of his operations.
- (10) The Contractor shall coordinate with the Engineer and the Railroad in order to determine the type of protection required to insure safety and continuity of Railroad traffic incidental to the particular methods of operation and equipment to be used on the work.
- (11) The Railroad will require protection during all periods when the Contractor is working on, or over, the right-of-way of the Railroad, or as may be found necessary in the opinion of the Railroad. When protection is required, refer to Paragraph 1(g).
- (12) It shall be expressly understood that this contract includes no work for which the Railroad is to be billed by the Contractor, and it shall be further understood that the Contractor is not to bill the Railroad for any work which he may perform, unless the Railroad gives a written request that such work be performed at its expense.
- (13) Upon completion of the work, and before final payment is made, the Contractor shall remove from within the limits of the Railroad's right-of-way, all machinery, equipment, surplus materials, falsework, rubbish and temporary buildings, and other property of the Contractor/sub-contractor, and shall leave the right-of-way in a condition satisfactory to the Railroad.

(c) **Railroad Protective Services** - will be provided in accordance with the Roadway

Worker's Protective Act, Title 49, Part 214, Sub-part C. Railroad protective services will also be performed to insure safe operations of trains when construction work would, in the Railroad's opinion, be a hazard to Railroad operations.

- (d) **Definition of Hazard** – the Railroad has furnished the statements quoted below, explaining when they consider a hazard to operations exists:

“Protective services will be required whenever the Contractor is performing work on or adjacent to the Railroad tracks or right-of-way, such as excavating, sheeting, shoring, erection and removal of forms, handling materials, using equipment which by swinging or by failure could foul the track, and when any other type of work being performed, in the opinion of the Railroad, requires such service.”

(e) **Contractor Requirements for Work Affecting the Railroad**

- (1) All matters requiring Railroad Company approval or coordination shall be directed to the Engineer or a duly authorized representative thereof, for forwarding to the Railroad Engineer.
- (2) Detailed plans and appurtenant data and calculations for any operation which, in the opinion of the Railroad, affect the Railroad, must be submitted to the Engineer or a duly authorized representative thereof, for forwarding to the Railroad Engineer for approval prior to commencement of the work. All submissions shall comply with the submission requirements outlined in above Paragraph 1(b)(5).
- (3) Permissible Track Outages - are identified in the SECTION 1.08 – PROSECUTION AND PROGRESS – Article 1.08.04 – “Limitation of Operations” - Contractor Requirements for Work Affecting the Railroad contained within the General Provisions of the Contract. The times identified are the times that the track may be removed from service. **If power outages are required, that do not include substations, the de-energizing/re-energizing and grounding of the wires will subtract approximately forty-five minutes from the start and forty-five minutes at the end of the indicated outage period for a total of up to ninety minutes. If a substation is involved in the power outage request, the de-energizing/re-energizing and grounding of the wires will subtract approximately one hour and fifteen minutes from the start and one hour and fifteen minutes at the end of the indicated outage period for a total of up to two hours and thirty minutes.**
- (4) The Contractor shall maintain a minimum of 1-foot level shoulder from ends of ties to maintain lateral track support for all excavations and shall not excavate any slope steeper than 1 (vertical) on 2 (horizontal) from the edge of the shoulder. Sheeting shall be required on all excavations where the side of the excavation is intercepted by the Railroad live load influence line. The live load influence line is defined as a line originating at the bottom edge of tie and extending downward at a slope of 1 (vertical) on 1½ (horizontal). Such excavations must be designed to withstand, in

addition to all common loads such as soil pressure and hydrostatic pressure, a railroad live load of Cooper E-80.

- (5) The Contractor shall be required to design and install protective scaffolding over the right-of-way where, at the sole discretion of the Railroad, such scaffolding is necessary to protect the Railroad from possible falling debris; paint or other materials; to protect personnel working about the right-of-way or to provide a platform for personnel, materials and/or equipment. Said scaffolding shall be designed for live load of 200 pounds per square foot applied uniformly over the entire structure and 2 kips concentrated load placed anywhere on the structure. The two loads are not to be applied simultaneously for design purposes.
- (6) All excavation area shall be located by the Contractor and inspected by the Railroad for the purpose of determining conflicts with underground facilities. Exploratory trenches, a minimum of 3.5 feet deep and 15 inches wide in the form of an "H" with outside dimensions matching and outside of sheeting dimensions are to be hand dug, as directed by the railroad. In some locations, excavations may exceed 3.5 feet in depth. Specialty excavations such as screw anchors, cat pole foundations, etc. will require additional trenching to ensure all possible conflicts are located. These trenches are for exploratory purposes only and are to be backfilled and compacted immediately. All work outlined above must be done in the presence of a Railroad inspector.
- (7) Cavities adjacent to sheet piling, created by driving of sheet piling, shall be filled with sand and any disturbed ballast must be restored and compacted immediately.
- (8) Sheet piling shall be cut off at top of tie during construction and at 3 feet below bottom of tie after construction prior to completion of back filling.
- (9) Plans and calculations for sheeting and scaffolding must be submitted to the Engineer for forwarding to the Railroad for approval prior to construction. All submissions shall comply with the submission requirements outlined in above Paragraph 1(b)(5).

**(f) Requirements for Erection, Demolition and Other Rigging Operations On or Adjacent to Railroad Right-of-Way**

The Contractor will be required to furnish the following information to the Engineer or a duly authorized representative thereof, for forwarding to the Railroad Engineer for approval prior to the start of any rigging operation over or adjacent to the Railroad right-of-way:

- (1) Plan view showing locations of cranes, boom length and rigging operating radii, with delivery or disposal locations shown.

- (2) Crane rating sheets showing crane(s) to be adequate for 150% of the lift. Crane and boom nomenclature is to be indicated.
- (3) Plans and computations showing weight of pick.
- (4) Location plan showing obstructions, indicating that the proposed swing is possible.
- (5) Plans showing locations and details of mats, planking or special decking as may be required by the Railroad.
- (6) Written statement from crane owner giving the date of last crane condition and safety inspection and the results of said inspection.
- (7) Data sheet listing number, type, size and arrangement of slings, spreader bars or other connecting equipment. Include copies of catalog or information sheets of specialized equipment. All such equipment shall be shown as adequate and capable of safely carrying 150% of the calculated loading.
- (8) A complete procedure is to be included, indicating the order of lifts and repositioning or rehitching of the crane(s).
- (9) Temporary support of any components or intermediate stages is to be shown.
- (10) A time schedule of the various stages must be shown, as well as a schedule for the entire lifting procedure.
- (11) All erection, demolition and rigging plans and calculations submitted to the Railroad. All submissions shall comply with the submission requirements outlined in above Paragraph 1(b)(5).
- (12) Operations directly on or adjacent to the operating right-of-way will be performed only at times and under conditions specified by the Railroad's representative and in compliance with the Roadway Worker's Protective Act as stated in Paragraph 1(c).

**(g) Ordering Protective Personnel**

The Railroad will furnish Protective Service Personnel (conductors, flagmen, groundmen, inspectors, maintenance and/or other railroad personnel deemed necessary) to protect the operation of train traffic during the Contractor's construction activities. Railroad Protective Services will also be provided in conformance with the Roadway Worker's Protective Act as stated in Paragraph 1(c). There will be no charge to the Contractor for Railroad Protective Services provided. The providing or failing to provide Protective Services shall not relieve the Contractor from liability or payment for any damage caused by his or his subcontractor's operations conducted in their absence.

- (1) The Contractor must obey all instructions from Railroad representatives on the job site promptly. Failure to follow instructions shall be deemed sufficient cause for closing the job site to the Contractor and its employees.
- (2) The Railroad will, at its sole discretion, determine the need for and the availability of protective personnel. The Railroad will provide protective personnel to the extent possible considering its operational and maintenance priorities. The Railroad does not guarantee that protective personnel will be available to meet the Contractor's preferred schedule. Further, no work will commence until the assigned Railroad representative affirmatively advises the Contractor that the necessary protective personnel are stationed and that he may proceed.
- (3) The assessment of the need for protective services will be based upon a weekly Railroad Construction Coordination Meeting. At these meetings, the Contractor shall provide a Bi-weekly Schedule that will begin on the following Saturday. Based on that schedule, the Railroad will determine the Protective Services required for the two-week period. Protective Services will be reserved for the following week beginning on the Saturday and ordered for the second week of the schedule. It will be the Contractor's responsibility to perform work in accordance with the submitted schedule. Variations from the submitted schedule may result in additional and unnecessary costs to the Engineer, Railroad and Contractor.
  - (A) Unless otherwise stated elsewhere in the contract, the Contractor shall base his operations on a 5 consecutive day work week. The hours of operation during this time shall remain constant. Multiple shifts may be worked.
  - (B) The Contractor must demonstrate maximum use of Protective Service Personnel ordered. Failure to do so may result in the inability to consistently obtain services.
  - (C) The Contractor shall be responsible for forwarding all Protective Service requests from his subcontractors and suppliers in his Bi-weekly schedule submittal.
- (4) Requests to cancel construction activities, and subsequently the scheduled Protective Service Personnel, will be also submitted at the weekly Railroad Construction Coordination Meeting. At these meetings, the previously scheduled Protective Services for the week beginning on the following Saturday may be cancelled. This will be the only time for cancellation. Once cancelled, no re-ordering of Protective Services for the following week will be allowed.
- (5) Weather conditions will be considered the only basis upon which the Railroad will accept the Contractor's cancellation of scheduled work and will only be recognized on items of work which have been clearly identified and determined to be weather dependent in the Contractor's schedule. Activities not presented on the Bi-weekly

schedule at the weekly Railroad Construction Coordination Meeting will not be able to commence until it has been inserted into the schedule and presented at the next meeting.

- (6) Work that requires the support of Railroad personnel shall not be scheduled on the following days, unless the work is of an emergency nature:

|                     |                                 |                 |
|---------------------|---------------------------------|-----------------|
| Holiday's Observed: | *Independence Day               | *Christmas Day  |
| *New Year's Day     | *Labor Day                      | *New Year's Eve |
| *President's Day    | *Thanksgiving Day               |                 |
| *Good Friday        | *Day Following Thanksgiving Day |                 |
| *Memorial Day       | *Christmas Eve                  |                 |

\* The Saturday and Sunday preceding a Monday holiday.

\* The Saturday and Sunday following a Friday holiday.

\* The Friday and Monday preceding and following a weekend holiday.

\* There will be additional restrictions regarding the granting of weekend track outages beginning Thanksgiving Holiday to the second weekend of January in order to accommodate extra trains during holiday season.

#### (h) Requirements for Requesting Track Outages

Track outages as described in the plans and specifications must be requested at the weekly Railroad Construction Coordination Meeting.

- (1) All procedures, material and equipment must be approved and on site prior to the Railroad accepting the track outage request(s). This applies to all track outage requests.
- (2) Track outages will be granted based on need for constructability not for convenience.
- (3) The Contractor must demonstrate the maximum use of track outages by coordinating his activities and work so that various elements and multiple activities are performed during approved outages. Failure to consistently utilize track outages may cause the inability to gain approval of future requests for outages.

- (4) No new continuous track outages may be initiated the weekend preceding or following these holidays:

Thanksgiving, Christmas and New Year's.

However, long-term continuous outages may extend through these periods.

**(i) Catenary and Transmission Systems/Power Outages**

- (1) Catenary and Transmission Systems - The Contractor shall assume that all the wires on the Railroad Company are energized at all times and must be governed by the restrictions imposed by the Railroad with respect to such electrical circuits. Should it become necessary, in the opinion of the Railroad Engineer to de-energize any wire or wires to insure safety of operation, such wires will be de-energized by the Railroad only during such period that will not interfere with the Railroad's operation. When the de-energizing and re-energizing of wires is deemed necessary, a representative of the Power Department of the Railroad must be on duty and present to arrange for the same. He will notify the Contractor in writing when the wires have been de-energized and also when said wires are to be re-energized.

- (A) The Contractor is advised that the overhead electrification will remain in place for the duration of the entire project, except where called for on the drawings and in the specifications.

- (B) Track rails of the Railroad are energized. Particular care must be taken to see that no contact is made between adjoining rails with any material, which is a good conductor of electricity when dry, or material of any nature when wet. Particular care is necessary when any work involving the use of chains, steel rods, cables, pipes, etc., is done. Since the Contractor shall assume the wires and rails of the Railroad will be energized at all times, the Contractor shall require all of his employees, sub-contractors, and others to sign a form similar to the form shown in the Contractor Requirements for Work Affecting the Railroad contained within the General Provisions of the Contract.

**(2) Power Outages**

- (A) **Catenary Power Outages** - A catenary power outage must be scheduled concurrently with a track outage for the track and is restricted to the same periods as specified in the plans and specifications.

- (B) **Railroad Power and Signal Distribution Feeder Outages** - Outages for feeders can be allowed only during off-peak hours. These outages should be requested at the weekly Railroad Construction Coordination Meeting. One set of power and signal feeders, either the north or south side of the railroad, must remain energized at all times.

NOTE: During peak hours (5:00 a.m. to 10:00 a.m. and 3:30 p.m. to 10:00 p.m., Monday through Friday) of railroad traffic, both the north and south sets of power and signal feeders must be energized.

**(j) Safety for Contractor's Employees Working on or Adjacent to the Right-of-Way of the Railroad**

**(1) Personal Protection Equipment**

- (A)** Approved hard hats, reflectorized vests, safety footwear, safety eyewear and appropriate clothing must be worn by all Contractor employees while on the Right-of-Way, in yard, shop facilities, construction/work sites and in the operating control cab of a moving locomotive or train. Any exclusion must be jointly approved by Railroad's department head and Director of Safety.
- (B)** Other protective equipment such as goggles, face shields, safety belts, floatation vests, gloves and respirators shall be issued by the Contractor when required. Protection devices for hearing conservation may be used when determined necessary and safe to do so.

**(2) Possession or Use of Intoxicants and Illegal Substances**

The use of intoxicants, alcohol, narcotics, marijuana, amphetamines, hallucinogens or other illegal substances while working within the Railroad Right-of-Way, is prohibited and is sufficient cause for immediate removal from the Railroad property. Contractor employees under medication before or while on duty, must be certain that such use will not affect the safe performance of their duties.

Every contractor or consultant that is performing MOW Activities must comply with its obligations under 49 C.F.R. Part 219 to ensure that all MOW employees are being randomly tested for drugs and alcohol. Failure of a contractor or consultant to timely comply with the FRA Regulations may subject that firm to civil penalties. In addition, the Railroad has stated that contractors or consultants who do not comply with the FRA regulations will not be able to work on railroad property.

The term maintenance-of-way (MOW) employee, as used in 49 C.F.R. Part 219, is defined in 49 C.F.R. § 214.7 as "any employee...of a contractor to a railroad, whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal and communications systems, electric traction systems, roadway facilities or roadway maintenance machinery on or near track or with the potential of fouling a track, and flagmen and watchmen/lookouts." (collectively, MOW Activities).

The final rule, which is effective **June 12, 2017**, requires contractors and consultants employing MOW employees to submit a Part 219 Compliance Plan to FRA **prior** to the effective date. Please consult the following link to the model drug and alcohol plan prepared by the FRA for guidance.

<https://www.fra.dot.gov/eLib/details/L02814>

The final rule mandates, among other things, the establishment of a random testing pool to ensure a testing rate of 50% of MOW employees for drugs and 25% of MOW employees for alcohol on an annual basis. For more information related to the requirements, please refer to:

<http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5&node=49:4.1.1.1.14>

The contractor and consultants shall be required to submit copies of their 219 Compliance Plan submission confirmations and/or FRA issued approval letters to the State prior to starting any work on the railroad.

### **(3) Surveying Equipment**

- (A)** Measuring tape must be non-metallic to avoid shunting the signal system electric circuits. This will occur when a metallic object is laid across the top of two rails of any track.
- (B)** Electrically rated fiberglass elevation rods must be used to avoid injury in the event contact is made with energized catenary or signal/communication lines. Elevations of catenary wires must be obtained by or under direct supervision of a qualified Railroad Groundman.

### **(4) Conduct On or About Track**

- (A)** Contractor employees must not enter the track envelope unless it is absolutely necessary in performance of their duty. If it is deemed necessary, then the Contractor employees must walk on tracks or cross tracks only when accompanied by or with permission from a Qualified Railroad Employee of the Railroad. Always use approved walkways when available; otherwise identify and take the shortest safe route after looking in both directions. If more than one track is to be crossed, stop and look before crossing each track.
- (B)** The possession of an umbrella on or about tracks is prohibited.
- (C)** Contractor employees must not rest any object on their shoulders while they are within the track fouling envelope.
- (D)** Expect equipment to move on any track, in any direction, at any time.

Contractor employees must look in both directions and have permission from a Qualified Railroad Employee before:

1. Fouling track
2. Crossing track
3. Going between or around end of equipment or structure
4. Moving out from between or under equipment of structure
5. Getting on or off equipment
6. Performing any other applicable operation

- (E) When required by a conductor/flagman or other Qualified Railroad Employee to vacate tracks, the Contractor employees must comply immediately.

**(5) Catenary Electric Systems**

- (A) All overhead wires must be considered energized (LIVE) at all times except when it is known they have been de-energized and properly grounded.
- (B) Until the wires are de-energized, properly grounded, and a Groundman has notified that the overhead wires are such, all Contractor employees must not approach within 10 feet of transmission systems wires, catenary system or signal power wires.
- (C) At the beginning of each tour of duty, the Groundman will instruct the Contractor foreman and each Contractor employee, in the crew, of the dangers surrounding them, calling their particular attention to any hazards to be avoided in performance of the work.
- (D) Whether due to inadequate knowledge of the English language or for any other reason, a Contractor employee who, in the opinion of the Groundman, does not understand the instructions given, shall not be permitted to work or observe, on railroad property, unless such employee is accompanied by a translator, at all times. It shall be the contractor's responsibility to provide the translator.
- (E) When clearances have been obtained and the wires, equipment or apparatus properly grounded, the Groundman will indicate to the Contractor foreman and the crew the location of wires, equipment or apparatus from which power has been removed and the location of the grounding devices applied. The Groundman must obtain on standard form, the signature of the Contractor foreman indicating that he and the crew have been so instructed and will confine their work within the limits as outlined to them by the Groundman.
- (F) When the Groundman leaves his crew for any reason, he must notify the Contractor foreman and each person in the crew to stop all work in the vicinity of the wires, personally assuring himself that all persons have moved to a safe

distance away from the work area before his departure. The Groundman will obtain the signature of the Contractor foreman on standard form, that he and the crew have been informed that the Groundman is leaving the gang and they will not resume work until advised to do so on return of the Groundman.

- (G) When the clearances are to be released, the Groundman will inform the Contractor foreman and each person in the crew and will personally observe that all persons have moved to a safe distance from the wires, equipment or apparatus to be energized, before removing the grounding devices. The Groundman will obtain the signature of the Contractor foreman, on a standard form, stating that he and the gang have been advised that the wires, equipment or apparatus have been energized, and that they will remain at a safe distance from them until informed otherwise by the Groundman.
- (H) The Groundman will inform the Contractor foreman if any Contractor employee on the job is unsafe and will not comply with instructions. If trouble is experienced with the Contractor foreman in maintaining safe working conditions, the Groundman will immediately notify his supervisor.

**(6) Aerial Catenary Construction by Qualified Contractor Employees**

- (A) Aerial catenary work addressed in this Section shall include all overhead wire work shown in the contract.
- (B) Aerial catenary work by the Contractor shall be done in accordance with the Railroad's safety rules and in accordance with the National Electric Safety Code. Failure to comply with these rules could result in removal of "Qualified" privileges and or removal from the project.
- (C) Due to the specialty nature of the work, limited construction periods available, and high quality of work required, the aerial catenary construction is to be done only by qualified Contractor employees (except as outlined in section (E)). Only Contractor employees that meet the requirements of the International Brotherhood of Electrical Worker's standards for Journeyman Lineman and who have successfully completed a Metro-North power orientation class shall be considered a Qualified Employee. The Power orientation class will be given periodically and will require less than one-half day to complete. Approval for qualification shall be determined by Metro-North and that approval shall not be unreasonably withheld.
- (D) Metro-North approved Journeyman Lineman shall be issued identification as workers qualified to perform aerial catenary work. Qualified Contractor employees shall work according to the Railroad's MN-290 Electrical Operating Instructions. Metro-North approved Journeyman Lineman are authorized and expected to work within 3 feet of 13.5 kV energized overhead catenary.

Contractor employees shall not de-energize circuits, place initial grounds, or provide protection for others.

- (E) Apprentice Lineman shall be permitted to assist qualified Journeyman Lineman and work under their direct supervision within the following guidelines:
- i. The number of apprentice linemen allowed to work on the catenary will be one less than the total number of Metro-North Railroad Power Department Class “A” employees assigned to each contractor work operation. Additional groundmen will not be assigned to facilitate the use of Apprentices. (ex. 3-5 men crews are working a section of wire removal under the power outage protection of 2 Metro-North Railroad Power Department Class “A” employees, this contractor work operation may utilize one apprentice lineman.)
  - ii. No additional track or power outages shall be granted for the protection of apprentice Linemen.
  - iii. The Apprentice Linemen shall maintain an extended reach minimum approach distance of 10 feet to all railroad transmission wires, Catenary system, and signal power wires until such wires are de-energized, tested for potential, properly grounded, and proper protection afforded by a qualified Power Department Class “A” employee.
  - iv. The Contractor and his Safety Officer shall enforce the minimum approach distances and submit to the engineer a program to monitor and audit compliance of this procedure.

Apprentice Lineman are prohibited from coming closer than 10 feet from all overhead wires or circuits regardless of whether they have been de-energized or not.

## **(7) Safety Program and Plan**

- (A) Prior to the commencement of work the Contractor shall submit a “Working on the Railroad Safety Plan” that will include a Program which implements the plan. The submission shall be made to the Engineer or a duly authorized representative and forwarded to the Railroad for compliance with this specification. This plan is separate to the Health and Safety Plan required for other aspects of the project (i.e., lead, excavations, etc.).
- (B) Each employee of the Contractor, Subcontractor or others on site shall take and pass the Railroad Safety Training available on-line at [www.contractororientation.com](http://www.contractororientation.com) prior to being allowed to work on the project. In accordance with Section 3 below, there is no direct payment for all costs associated with this training process. Upon completing the on-line training, each

employee will be able to print a temporary certification of completion. The temporary certificate will be valid only until the employee receives their photo ID card and sticker by mail in 7-10 business days. Until the ID card and sticker arrive, the employee must carry the temporary certificate and be prepared to present it at all times while on railroad property. All employees receiving this training will receive a Registered Hard Hat sticker that will identify them as a trained employee. No Contractor employees are permitted on the Railroad Right-of-Way without evidence of this training. Contractor employees shall be responsible for renewal of this training annually.

- (C) All contractor employees entering the railroad right-of-way must attend and acknowledge the daily job briefings prior to commencing any work. The qualified railroad employees will conduct the job briefings.
- (D) The Contractor shall hold "TOOL BOX" safety meetings for their employees at least once a week that will be documented and attendees listed.
- (E) The Contractor supervisor shall attend a monthly Railroad Safety Meeting.
- (F) With regard to deliveries of materials to the project, those Contractor employees and/or delivery personnel, who will not remain on the railroad property for more than an hour at a time while actively making the delivery, will not be required to complete the Railroad Safety Training. It will be the contractor's responsibility to inform the qualified railroad employee that a delivery is expected and the approximate time of arrival. It will be the contractor's responsibility to inform the delivery personnel of the safest approach and location, agreed to by the qualified railroad employee, prior to the actual delivery.

## **2. Insurance Requirements – Metro-North Railroad**

The Contractor engaged in work on the project shall be required to comply with the requirements set forth under Article 1.03.07 – Insurance of the Standard Specifications, its supplements and special provisions contained herein.

## **3. Cost Associated with this Specification**

- (a) There shall be no direct payment for compliance to this specification. All costs associated with any regulatory requirements, traffic regulation, specification administration, coordination, materials and incidentals required to fulfill the requirements of this specification will be considered as included in the general cost of the work and distributed in all items.
- (b) Any work, material supplied, inspections and protective services by the Railroad as described in the plans and specification, expressly needed for the construction of the

project, will be compensated to the Railroad by the Engineer under a separate agreement.”

## **SECTION 1.08 - PROSECUTION AND PROGRESS**

### **Article 1.08.04 - Limitation of Operations - Add the following:**

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be permitted to perform any work which will interfere with the described traffic operations on all project roadways as follows:

#### **Route 8**

On the following State observed Legal Holidays:

New Year's Day  
Good Friday, Easter\*  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day\*\*  
Christmas Day

The following restrictions also apply:

On the day before and the day after any of the above Legal Holidays.

On the Friday, Saturday, and Sunday immediately preceding any of the above Holidays celebrated on a Monday.

On the Saturday, Sunday, and Monday immediately following any of the above Holidays celebrated on a Friday.

\* From 6:00 a.m. the Thursday before the Holiday to 8:00 p.m. the Monday after the Holiday.

\*\* From 6:00 a.m. the Wednesday before the Holiday to 8:00 p.m. the Monday after the Holiday.

#### During all other times

The Contractor shall maintain and protect traffic as shown on the accompanying "Limitation of Operations" charts, which dictate the minimum number of lanes that must remain open for each day of the week.

**Project      Nos.      151-333/334**  
**Limitation of Operations Chart**  
**Minimum Number of Lanes to Remain Open**

| Route 8 NB                            |     |     |     |     |     |     |     |
|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Location: Bridge Nos. 03177 and 03179 |     |     |     |     |     |     |     |
| Number of Through Lanes: 2            |     |     |     |     |     |     |     |
| Hour<br>Beginn-<br>ing                | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| Mid                                   | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 1 AM                                  | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 2 AM                                  | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 3 AM                                  | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 4 AM                                  | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 5 AM                                  | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 6 AM                                  | 1   | E   | E   | E   | E   | E   | 1   |
| 7 AM                                  | 1   | E   | E   | E   | E   | E   | 1   |
| 8 AM                                  | 1   | E   | E   | E   | E   | E   | 1   |
| 9 AM                                  | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 10 AM                                 | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 11 AM                                 | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| Noon                                  | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 1 PM                                  | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 2 PM                                  | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 3 PM                                  | 2   | E   | E   | E   | E   | E   | 2   |
| 4 PM                                  | 2   | E   | E   | E   | E   | E   | 2   |
| 5 PM                                  | 2   | E   | E   | E   | E   | E   | 2   |
| 6 PM                                  | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 7 PM                                  | 1   | 1   | 2   | 2   | 2   | 2   | 1   |
| 8 PM                                  | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 9 PM                                  | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 10 PM                                 | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 11 PM                                 | 1   | 1   | 1   | 1   | 1   | 1   | 1   |

On Holidays and within Holiday Periods, all Hours shall be 'E.'

**'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period**

**Project        Nos.        151-333/334**  
**Limitation of Operations Chart**  
**Minimum Number of Lanes to Remain Open**

| Route 8 SB                          |     |     |     |     |     |     |     |
|-------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Location: Bridge Nos. 03176 & 03178 |     |     |     |     |     |     |     |
| Number of Through Lanes: 2          |     |     |     |     |     |     |     |
| Hour<br>Beginn-<br>ing              | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| Mid                                 | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 1 AM                                | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 2 AM                                | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 3 AM                                | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 4 AM                                | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 5 AM                                | 1   | 2   | 2   | 2   | 2   | 2   | 1   |
| 6 AM                                | 1   | E   | E   | E   | E   | E   | 1   |
| 7 AM                                | 1   | E   | E   | E   | E   | E   | 2   |
| 8 AM                                | 1   | E   | E   | E   | E   | E   | 2   |
| 9 AM                                | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 10 AM                               | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 11 AM                               | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| Noon                                | E   | 2   | 2   | 2   | 2   | 2   | 2   |
| 1 PM                                | E   | 2   | 2   | 2   | 2   | 2   | 2   |
| 2 PM                                | E   | 2   | 2   | 2   | 2   | 2   | 2   |
| 3 PM                                | E   | E   | E   | E   | E   | E   | 2   |
| 4 PM                                | E   | E   | E   | E   | E   | E   | 2   |
| 5 PM                                | E   | E   | E   | E   | E   | E   | 2   |
| 6 PM                                | E   | 2   | 2   | 2   | 2   | 2   | 2   |
| 7 PM                                | 2   | 1   | 1   | 1   | 1   | 2   | 1   |
| 8 PM                                | 2   | 1   | 1   | 1   | 1   | 1   | 1   |
| 9 PM                                | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 10 PM                               | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 11 PM                               | 1   | 1   | 1   | 1   | 1   | 1   | 1   |

On Holidays and within Holiday Periods, all Hours shall be 'E.'

**'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period**

The Contractor will be allowed to halt Route 8 traffic for any period not to exceed 10 minutes to perform necessary work for minor items and/or moving barrier, as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

The Contractor shall not be permitted to interrupt traffic for any continuous period of time until both of the following conditions are satisfied:

1. The Contractor has secured all of the required approvals from the Engineer, and,
2. The Contractor has, as much as practical, all of the required materials needed on the site or readily available for that construction which requires the interruption of Traffic.

The Contractor will be allowed to maintain one lane of traffic on Route 8 to complete all work associated with the expansion joint reconstruction over four (4) – fifty-six (56) hour work periods. The Contractor will be permitted to begin implementing the M&PT plan along Route 8 beginning no earlier than 9:00 p.m. on Friday and concluding at 5:00 a.m. on Monday at the latest. The Contractor shall work continuously until all work is done for the particular period. The work shall occur over two consecutive weekends at each bridge. The 56-hour work period will be utilized for the partial reconstruction of the deck and backwall and construction of the expansion joints in accordance with the Maintenance and Protection of Traffic Plans contained in the contract plans. The Contractor shall provide the required number of crews and all necessary equipment to complete this work within the time period specified. The Contractor shall provide the Engineer with an hour by hour schedule along with a detailed sequence of operations for the work to be performed in the 56-hour period, at least 14 days prior to the anticipated starting date for review and approval by the Department.

The Contractor shall, at least 14 days in advance, notify the Engineer, District 4 Construction, CTDOT Traffic Division, City of Waterbury Department of Public Works, Board of Education, and the respective emergency services in the City of Waterbury with a copy to the Engineer, of any lane closures.

The Contractor will be allowed to close the shoulder along Route 8 to complete all work associated with the reconstruction of the metal beam rail.

### **Ramps and Turning Roadways**

The Contractor will not be permitted to perform any work which will interfere with traffic operations as follows:

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

### **All Other Roadways**

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.  
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

### **Additional Lane Closure Restrictions**

It is anticipated that work on adjacent projects will be ongoing simultaneously with this project. The Contractor shall be aware of those projects and anticipate that coordination will be required to maintain proper traffic flow at all times on all project roadways, in a manner consistent with these specifications and acceptable to the Engineer.

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a one mile clear area length where the entire roadway is open to traffic or the closures have been coordinated and are acceptable to the Engineer. The one-mile clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

Special attention and coordination shall be made by both Projects as detailed on the Maintenance and Protection of Traffic plans.

### **Contractor Requirements for Work affecting the Railroad**

1. In general, unless otherwise authorized by the Railroad, the Contractor's construction activities and operations directly over and/or adjacent to the operating railroad right-of-way can be performed only during the following track outage periods shown below.

| Line           | Outage Detail | Day               | Track      | Time (24 hr)   |
|----------------|---------------|-------------------|------------|----------------|
| Waterbury Line | Beak to Water | Sunday            | Main Track | 01:10 to 06:00 |
| Waterbury Line | Beak to Water | Monday            | Main Track | 01:10 to 04:15 |
| Waterbury Line | Beak to Water | Tuesday to Friday | Main Track | 00:45 to 04:15 |
| Waterbury Line | Beak to Water | Saturday          | Main Track | 00:45 to 06:00 |

During day shift foul time can be established between trains during off-peak hours.

Bridge Deck Repairs, Substructure Repair and Bridge Deck Drainage Repairs:

#### **NOTES:**

- a. The above outages are not guaranteed by Metro-North Railroad at all times.
- b. The Contractor's plan for demolition, erection, and any operation adjacent to or within the Railroad Right of Way shall be submitted to the Engineer for Railroad approval, prior to start of work.
- c. No full track and/or power outages will be permitted on weekends either immediately before or after major holidays, nor any weekend between Thanksgiving and New Year's Day.
- d. The track outage periods shown above are the times that the track(s) may be taken out of train service. Refer to Section 1.05.06(1)(e)(3) for additional restrictions regarding power outages requiring de-energizing, grounding and re-energizing of the wires.
- e. In accordance with FRA Rule 214.336, should the Contractor require a track outage and require the use of hi-rail equipment on that track, the adjacent track(s) must also be taken out of service.

2. All work involving rail, ties, and other track components on active tracks, unless specifically designated otherwise within the Contract, will be performed by Railroad employees. The Contractor may not remove abandoned (out of service) track unless given prior written approval from the Railroad and the Engineer.
3. The Contractor shall assume that the wires and rails of the Railroad will be energized at all times.

## **ON-THE-JOB TRAINING (OJT) WORKFORCE DEVELOPMENT PILOT:**

### **Description**

To provide construction industry related job opportunities to minorities, women and economically disadvantaged individuals; and to increase the likelihood of a diverse and inclusive workforce on Connecticut Department of Transportation (ConnDOT) projects.

All contractors (existing and newcomers) will be automatically placed in the Workforce Development Pilot. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level for new projects. Instead, these requirements will be applicable on an annual basis for each contractor performing work on ConnDOT projects.

The OJT Workforce Development Pilot will allow a contractor to train employees on Federal, State and privately funded projects located in Connecticut. However, contractors should give priority to training employees on ConnDOT Federal-Aid funded projects.

### **Funding**

The Department will establish an OJT fund annually from which contractors may bill the Department directly for eligible trainee hours. The funds for payment of trainee hours on federal-aid projects will be allocated from the ½ of 1% provided for OJT funding, and will be based on hours trained, not to exceed a maximum of \$25,000.00 per year; per contractor.

### **Minorities and Women**

Developing, training and upgrading of minorities, women and economically disadvantaged individuals toward journeyman level status is the primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority, women and economically disadvantaged individuals as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training whether a member of a minority group or not.

### **Assigning Training Goals**

The Department, through the OJT Program Coordinator, will assign training goals for a calendar year based on the contractor's past two year's activities and the contractor's anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time, the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from one (1) to six (6) per

contractor per calendar year. Each January, a summary of the trainees required and the OJT Workforce Development Pilot package will be sent to participating contractors. The number of trainees assigned to each contractor in the summary will increase proportionately not to exceed 6, as shown in the following table. This package will also be provided to contractors as they become newly eligible for the OJT Workforce Development Pilot throughout the remainder of the year. Projects awarded after September 30 will be included in the following year's Program.

The dollar thresholds for training assignments are as follows:

|                    |            |
|--------------------|------------|
| \$4.5 – 8 million= | 1 trainee  |
| \$ 9 – 15 million= | 2 trainees |
| \$16 – 23 million= | 3 trainees |
| \$24 – 30 million= | 4 trainees |
| \$31 – 40 million= | 5 trainees |
| \$41 – and above=  | 6 trainees |

### **Training Classifications**

Preference shall be given to providing training in the following skilled work classifications. However, the classifications established are not all-inclusive:

|                     |                                  |
|---------------------|----------------------------------|
| Equipment Operators | Electricians                     |
| Laborers            | Painters                         |
| Carpenters          | Iron / Reinforcing Steel Workers |
| Concrete Finishers  | Mechanics                        |
| Pipe Layers         | Welders                          |

The Department has on file common training classifications and their respective training requirements; that may be used by the contractors. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and the number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

Where feasible, 25% percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

## **Records and Reports**

The Contractor shall maintain enrollment in the program and submit all required reports documenting company compliance under these contract requirements. These documents and any other information shall be submitted to the OJT Program Coordinator as requested.

Upon the trainee's completion and graduation from the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

## **Trainee Interviews**

In order to determine the continued effectiveness of the OJT Program in Connecticut, the department will periodically conduct personal interviews with current trainees and may survey recent graduates of the program. This enables the OJT Program Coordinator to modify and improve the program as necessary. Trainee interviews are generally conducted at the job site to ensure that the trainees' work and training is consistent with the approved training program.

## **Trainee Wages**

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

|            |   |
|------------|---|
| 60 percent | of the journeyman wage for the first half of the training period    |
| 75 percent | of the journeyman wage for the third quarter of the training period |
| 90 percent | of the journeyman wage for the last quarter of the training period  |

*In no case, will the trainee be paid less than the prevailing rate for general laborer as shown in the contract wage decision (must be approved by the Department of Labor).*

## **Achieving or Failing to Meet Training Goals**

The Contractor will be credited for each trainee currently enrolled or who becomes enrolled in the approved training program and providing they receive the required training under the specific training program. Trainees will be allowed to be transferred between projects if required by the Contractor's schedule and workload. The OJT Program Coordinator must be notified of transfers within five (5) days of the transfer or reassignments by e-mail ([Phylisha.Coles@ct.gov](mailto:Phylisha.Coles@ct.gov)).

Where a contractor does not or cannot achieve its annual training goal with female or minority trainees, they must produce adequate Good Faith Efforts documentation. Good Faith Efforts are those designed to achieve equal opportunity through positive, aggressive, and continuous result-oriented measures. 23 CFR § 230.409(g) (4). Contractors should request minorities and females from unions when minorities and females are under-represented in the contractor's workforce.

Whenever a contractor requests ConnDOT approval of someone other than a minority or female, the contractor must submit documented evidence of its Good Faith Efforts to fill that position with a minority or female. When a non-minority male is accepted, a contractor must continue to attempt to meet its remaining annual training goals with females and minorities.

Where a contractor has neither attained its goal nor submitted adequate Good Faith Efforts documentation, ConnDOT will issue a letter of non-compliance. Within thirty (30) days of receiving the letter of non-compliance, the contractor must submit a written Corrective Action Plan (CAP) outlining the steps that it will take to remedy the non-compliance. The CAP must be approved by ConnDOT. Failure to comply with the CAP may result in your firm being found non-responsive for future projects.

### **Measurement and Payment**

Optional reimbursement will be made to the contractor for providing the required training under this special provision on ConnDOT Federal-Aid funded projects only.

Contractor will be reimbursed at \$0.80 for each hour of training given to an employee in accordance with an approved training or apprenticeship program. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement.

Reimbursement for training is made annually or upon the trainees completion and not on a monthly basis. No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor.

Program reimbursements will be made directly to the prime contractor on an annual basis. To request reimbursement, prime contractors must complete the Voucher for OJT Workforce Development Pilot Hourly Reimbursement for each trainee in the OJT Program. This form is included in the OJT Workforce Development Pilot package and is available on the Department's web site at:

[www.ct.gov/dot](http://www.ct.gov/dot)

The completed form must be submitted to the Office of Contract Compliance for approval. The form is due on the 15<sup>th</sup> day of January for each trainee currently enrolled and for hours worked on ConnDOT Federal-Aid funded projects only.

## D.B.E. SUBCONTRACTORS AND MATERIAL SUPPLIERS OR MANUFACTURERS

**January 2013**

### **I. ABBREVIATIONS AND DEFINITIONS AS USED IN THIS SPECIAL PROVISION**

A. *CTDOT* means the Connecticut Department of Transportation.

B. *USDOT* means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration (“FHWA”), the Federal Transit Administration (“FTA”), and the Federal Aviation Administration (“FAA”).

C. *Broker* means a party acting as an agent for others in negotiating Contracts, Agreements, purchases, sales, etc., in return for a fee or commission.

D. *Contract, Agreement or Subcontract* means a legally binding relationship obligating a seller to furnish supplies or services (including but not limited to, construction and professional services) and the buyer to pay for them. For the purposes of this provision, a lease for equipment or products is also considered to be a Contract.

E. *Contractor* means a consultant, second party or any other entity under Contract to do business with CTDOT or, as the context may require, with another Contractor.

F. *Disadvantaged Business Enterprise (“DBE”)* means a for profit small business concern:

1. That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and
2. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it; and
3. Certified by CTDOT under Title 49 of the Code of Federal Regulations, Part 26, (Title 49 CFR Part 23 of the Code of Federal Regulations for Participation of Disadvantaged Business Enterprise in Airport Concessions)

G. *USDOT-assisted Contract* means any Contract between CTDOT and a Contractor (at any tier) funded in whole or in part with USDOT financial assistance.

H. *Good Faith Efforts (“GFE”)* means all necessary and reasonable steps to achieve a DBE goal or other requirement which by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

I. *Small Business Concern* means, with respect to firms seeking to participate as DBEs in USDOT-assisted Contracts, a small business concern as defined pursuant to Section 3 of the Small Business Act and Small Business Administration (“SBA”) regulations implementing it (13 CFR Part 121) that also does not exceed the cap on average annual gross receipts in 49 CFR Part 26, Section 26.65(b).

*J. Socially and Economically Disadvantaged Individual* means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is:

1. Any individual who CTDOT finds, on a case-by-case basis, to be a socially and economically disadvantaged individual.
2. Any individuals in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
  - “Black Americans”, which includes persons having origins in any of the Black racial groups of Africa;
  - “Hispanic Americans”, which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
  - “Native Americans”, which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians.
  - “Asian-Pacific Americans”, which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, or Federated States of Micronesia;
  - “Subcontinent Asian Americans”, which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
  - Women;
  - Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

*K. Commercially Useful Function (“CUF”)* means the DBE is responsible for the execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved with its own forces and equipment. The DBE must be responsible for procuring, determining quantity, negotiating price, determining quality and paying for all materials (where applicable) associated with their work. The DBE must also perform at least 30% of the total cost of its contract with its own workforce.

## **II. ADMINISTRATIVE REQUIREMENTS**

### **A. General Requirements**

A DBE goal percentage equaling 8 percent (%) of the Contract value has been established for this Contract. This DBE goal percentage will be applied to the final Contract value to ultimately determine the required DBE goal. If additional work is required, DBE firms should be provided the appropriate opportunities to achieve the required DBE goal.

In order to receive credit toward the Contract DBE goal, the firms utilized as DBE subcontractors or suppliers must be certified as DBEs in the type of work to be counted for credit by CTDOT’s Office of Contract Compliance prior to the date of the execution of the subcontract. Neither CTDOT nor the State of Connecticut’s Unified Certification Program (UCP) makes any representation as to any DBE’s technical or financial ability to perform the work. Prime contractors are solely responsible for performing due diligence in hiring DBE subcontractors.

All DBEs shall perform a CUF for the work that is assigned to them. The Contractor shall monitor and ensure that the DBE is in compliance with this requirement. The Connecticut DBE UPC Directory of certified firms can be found on the CTDOT website <http://www.ct.gov/dot>. The directory lists certified DBE firms with a description of

services that they are certified to perform. Only work identified in this listing may be counted towards the project's DBE goal. A DBE firm may request to have services added at any time by contacting CTDOT's Office of Contract Compliance. No credit shall be counted for any DBE firm found not to be performing a CUF.

Once a Contract is awarded, all DBEs that were listed on the pre-award DBE commitment document must be utilized. The Contractor is obligated to provide the value and items of the work originally established in the pre-award documentation to the DBE firms listed in the pre-award documentation. Any modifications to the pre-award commitment must follow the procedure established in Section II-C.

The Contractor shall designate a liaison officer who will administer the Contractor's DBE program. Upon execution of this Contract, the name of the liaison officer shall be furnished in writing to CTDOT's unit administering the Contract, CTDOT's Office of Contract Compliance and CTDOT's Office of Construction ("OOC"). Contact information for the designated liaison officer shall be furnished no later than the scheduled date for the pre-construction meeting.

**The Contractor shall submit a bi-monthly report to the appropriate CTDOT unit administering the Contract. This report shall indicate what work has been performed to date, with the dollars paid and percentage of DBE goal completed.**

**Verified payments made to DBEs shall be included in this bi-monthly report. A sample form is included on the CTDOT website.**

In addition, the report shall include:

1. A projected time frame of when the remaining work is to be completed for each DBE.
2. A statement by the Contractor either confirming that the approved DBEs are on schedule to meet the Contract goal, or that the Contractor is actively pursuing a GFE.
3. If retainage is specified in the Contract specifications, then a statement of certification that the subcontractors' retainage is being released in accordance with 1.08.01 (Revised or supplemented).

Failure by the Contractor to provide the required reports may result in CTDOT withholding an amount equal to one percent (1%) of the monthly estimate until the required documentation is received.

The Contractor shall receive DBE credit when a DBE, or any combination of DBEs, perform work under the Contract in accordance with this specification.

Only work actually performed by and/or services provided by DBEs which are certified for such work and/or services, as verified by CTDOT, can be counted toward the DBE goal. Supplies and equipment a DBE purchases or leases from the Contractor or its affiliate cannot be counted toward the goal.

Monitoring of the CUF will occur by CTDOT throughout the life of the project. If it is unclear that the DBE is performing the work specified in its subcontract with the prime Contractor, further review may be required. If it is determined that the DBE is not performing a CUF, then the work performed by that DBE will not be counted towards the DBE goal percentage.

## **B. Subcontract Requirements**

The Contractor shall submit to CTDOT's OOC all requests for subcontractor approvals on the standard CLA-12 forms provided by CTDOT. The dollar amount and items of work identified on the CLA-12 form must, at minimum, equal the dollar value submitted in the pre-award commitment. CLA-12 forms can be found at <http://www.ct.gov/dot/construction> under the "Subcontractor Approval" section. All DBE subcontractors must be identified on the CLA-12 form, regardless of whether they are being utilized to meet a Contract goal percentage. A copy of the legal Contract between the Contractor and the DBE subcontractor/supplier, a copy of the Title VI Contractor Assurances and a copy of the Required Contract Provision for Federal Aid Construction Contracts (Form FHWA-1273) (Federal Highway Administration projects only) must be submitted along with a request for subcontractor approval. These attachments cannot be substituted by reference.

If retainage is specified in the Contract specifications, then the subcontract agreement must contain a prompt payment mechanism that acts in accordance with Article 1.08.01 (Revised or supplemented).

If the Contract specifications do not contain a retainage clause, the Contractor shall not include a retainage clause in any subcontract agreement, and in this case, if a Contractor does include a retainage clause, it shall be deemed unenforceable.

In addition, the following documents are to be included with the CLA-12, if applicable:

- An explanation indicating who will purchase material.
- A statement explaining any method or arrangement for utilization of the Contractor's equipment.

The subcontract must show items of work to be performed, unit prices and, if a partial item, the work involved by all parties. If the subcontract items of work or unit prices are modified, the procedure established in Section II-C must be followed.

Should a DBE subcontractor further sublet items of work assigned to it, only lower tier subcontractors who are certified as a DBE firm will be counted toward the DBE goal. If the lower tier subcontractor is a non-DBE firm, the value of the work performed by that firm will not be counted as credit toward the DBE goal.

The use of joint checks between a DBE firm and the Contractor is acceptable, provided that written approval is received from the OOC prior to the issuance of any joint check. Should it become necessary to issue a joint check between the DBE firm and the Contractor to purchase materials, the DBE firm must be responsible for negotiating the cost, determining the quality and quantity, ordering the material and installing (where applicable), and administering the payment to the supplier. The Contractor should not make payment directly to suppliers.

Each subcontract the Contractor signs with a subcontractor must contain the following assurance:

"The subcontractor/supplier/manufacture shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor/subcontractor/supplier/manufacture to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate."

## **C. Modification to Pre-Award Commitment**

Contractors may not terminate for convenience any DBE subcontractor or supplier that was listed on the pre-award DBE commitment without prior written approval of the OOC. This includes, but is not limited to, instances in which a Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of

an affiliate, a non-DBE firm, or with another DBE firm. Prior to approval, the Contractor must demonstrate to the satisfaction of the OOC, that it has good cause, as found in 49CFR Part 26.53 (f)(3), for termination of the DBE firm.

Before transmitting its request for approval to terminate pre-award DBE firms to the OOC, the Contractor must give written notice to the DBE subcontractor and include a copy to the OOC of its notice to terminate and/or substitute, and the reason for the notice.

The Contractor must provide five (5) days for the affected DBE firm to respond. This affords the DBE firm the opportunity to advise the OOC and the Contractor of any reasons why it objects to the termination of its subcontract and why the OOC should not approve the Contractor's action.

Once the Contract is awarded, should there be any amendments or modifications of the approved pre-award DBE submission other than termination of a DBE firm, the Contractor shall follow the procedure below that best meets the criteria associated with the reason for modification:

1. If the change is due to a scope of work revision or non-routine quantity revision by CTDOT, the Contractor must notify CTDOT's OOC in writing or via electronic mail that their DBE participation on the project may be impacted as soon as they are aware of the change. In this case, a release of work from the DBE firm may not be required; however the Contractor must concurrently notify the DBE firm in writing, and copy the OOC for inclusion in the project DBE file. This does not relieve the Contractor of its obligation to meet the Contract specified DBE goal, or of any other responsibility found in this specification.
2. If the change is due to a factor other than a CTDOT directive, a request for approval in writing or via electronic mail of the modification from the OOC must be submitted, along with an explanation of the change(s), prior to the commencement of work. The Contractor must also obtain a letter of release from the originally named DBE indicating their concurrence with the change, and the reason(s) for their inability to perform the work. In the event a release cannot be obtained, the Contractor must document all efforts made to obtain it.
3. In the event a DBE firm that was listed in the pre-award documents is **unable** or **unwilling** to perform the work assigned, the Contractor shall:
  - Notify the OOC Division Chief immediately and make efforts to obtain a release of work from the firm.
  - Submit documentation that will provide a basis for the change to the OOC for review and approval prior to the implementation of the change.
  - Use the DBE Directory to identify and contact firms certified to perform the type of work that was assigned to the unable or unwilling DBE firm. The Contractor should also contact CTDOT's Office of Contract Compliance for assistance in locating additional DBE firms to the extent needed to meet the contract goal.

Should a DBE subcontractor be terminated or fail to complete work on the Contract for any reason, the Contractor must make a GFE to find another DBE subcontractor to substitute for the original DBE. The DBE replacement shall be given every opportunity to perform at least the same amount of work under the Contract as the original DBE subcontractor.

If the Contractor is unable to find a DBE replacement:

- The Contractor should identify other contracting opportunities and solicit DBE firms in an effort to meet the Contract DBE goal requirement, if necessary, and provide documentation to support a GFE. (Refer to GFE in Section III.)
- The Contractor must demonstrate that the originally named DBE, who is unable or unwilling to perform the work assigned, is in default of its subcontract, or identify other issues that affected the DBE firm's ability to perform the assigned work. **The Contractor's ability to negotiate a more advantageous agreement with another subcontractor is not a valid basis for change.**

### **III. GOOD FAITH EFFORTS**

The DBE goal is **NOT** reduced or waived for projects where the Contractor receives a Pre-Award GFE determination from the Office of Contract Compliance prior to the award of the Contract. It remains the responsibility of the Contractor to make a continuing GFE to achieve the specified Contract DBE goal. The Contractor shall pursue every available opportunity to obtain additional DBE firms and document all efforts made in such attempts.

At the completion of all Contract work, the Contractor shall submit a final report to CTDOT's unit administering the Contract indicating the work done by and the dollars paid to DBEs. Only verified payments made to DBEs performing a CUF will be counted towards the Contract goal.

Goal attainment is based on the total Contract value, which includes all construction orders created during the Contract. If the Contractor does not achieve the specified Contract goal for DBE participation or has not provided the value of work to the DBE firms originally committed to in the pre-award submission, the Contractor shall submit documentation to CTDOT's unit administering the Contract detailing the GFE made during the performance of the Contract to satisfy the goal.

A GFE should consist of the following, where applicable (CTDOT reserves the right to request additional information):

1. A detailed statement of the efforts made to replace an unable or unwilling DBE firm, and a description of any additional subcontracting opportunities that were identified and offered to DBE firms in order to increase the likelihood of achieving the stated goal.
2. A detailed statement, including documentation of the efforts made to contact and solicit bids from certified DBEs, including the names, addresses, and telephone numbers of each DBE firm contacted; the date of contact and a description of the information provided to each DBE regarding the scope of services and anticipated time schedule of work items proposed to be subcontracted and the response from firms contacted.
3. Provide a detailed explanation for each DBE that submitted a subcontract proposal which the Contractor considered to be unacceptable stating the reason(s) for this conclusion.
4. Provide documentation, if any, to support contacts made with CTDOT requesting assistance in satisfying the specified Contract goal.
5. Provide documentation of all other efforts undertaken by the Contractor to meet the defined goal. Additional documentation of efforts made to obtain DBE firms may include but will not be limited to:
  - Negotiations held in good faith with interested DBE firms, not rejecting them without sound reasons.

- Written notice provided to a reasonable number of specific DBE firms in sufficient time to allow effective participation.
- Those portions of work that could be performed by readily available DBE firms.

**In instances where the Contractor can adequately document or substantiate its GFE and compliance with other DBE Program requirements, the Contractor will have satisfied the DBE requirement and no administrative remedies will be imposed.**

#### **IV. PROJECT COMPLETION**

At the completion of all Contract work, the Contractor shall:

1. Submit a final report to CTDOT's unit administering the Contract indicating the work done by, and the dollars paid to DBEs.
2. Submit verified payments made to all DBE subcontractors for the work that was completed.
3. Submit documentation detailing any changes to the DBE pre-award subcontractors that have not met the original DBE pre-award commitment, including copies of the Department's approvals of those changes.
4. Retain all records for a period of three (3) years following acceptance by CTDOT of the Contract and those records shall be available at reasonable times and places for inspection by authorized representatives of CTDOT and Federal agencies. If any litigation, claim, or audit is started before the expiration of the three (3) year period, the records shall be retained until all litigation, claims, or audit findings involving the records are resolved.

If the Contractor does not achieve the specified Contract goal for DBE participation in addition to meeting the dollar value committed to the DBE subcontractors identified in the pre-award commitment, the Contractor shall submit documentation to CTDOT's unit administering the Contract detailing the GFE made during the performance of the Contract to satisfy the goal.

#### **V. SHORTFALLS**

##### **A. Failure to meet DBE goals**

**As specified in (II-A) above, attainment of the Contract DBE goal is based on the final Contract value.** The Contractor is expected to achieve the amount of DBE participation originally committed to at the time of award; however, additional efforts must be made to provide opportunities to DBE firms in the event a Contract's original value is increased during the life of the Contract.

The Contractor is expected to utilize the DBE subcontractors originally committed in the DBE pre-award documentation for the work and dollar value that was originally assigned.

If a DBE is terminated or is unable or unwilling to complete its work on a Contract, the Contractor shall make a GFE to replace that DBE with another certified DBE to meet the Contract goal.

The Contractor shall immediately notify the OOC of the DBE's inability or unwillingness to perform, and provide reasonable documentation and make efforts to obtain a release of work from the firm.

If the Contractor is unable to find a DBE replacement, then the Contractor should identify other contracting opportunities and solicit DBE firms in an effort to meet the Contract DBE goal requirement, if necessary, and provide documentation to support a GFE.

When a DBE is unable or unwilling to perform, or is terminated for just cause, the Contractor shall make a GFE to find other DBE opportunities to increase DBE participation to the extent necessary to at least satisfy the Contract goal.

For any DBE pre-award subcontractor that has been released appropriately from the project, no remedy will be assessed, provided that the Contractor has met the criteria described in Section II-C.

## **B. Administrative Remedies for Non-Compliance:**

In cases where the Contractor has failed to meet the Contract specified DBE goal or the DBE pre-award commitment, and where no GFE has been demonstrated, then one or more of the following administrative remedies will be applied:

1. A reduction in Contract payments to the Contractor as determined by CTDOT, not to exceed the shortfall amount of the **DBE goal**. The maximum shortfall will be calculated by multiplying the Contract DBE goal (adjusted by any applicable GFE) by the final Contract value, and subtracting any verified final payments made to DBE firms by the Contractor.
2. A reduction in Contract payments to the Contractor determined by CTDOT, not to exceed the shortfall amount of the **pre-award commitment**. The maximum shortfall will be calculated by subtracting any verified final payments made by the Contractor to each DBE subcontractor from the amount originally committed to that subcontractor in the pre-award commitment.
3. A reduction in Contract payments to the Contractor determined by CTDOT for any pre-award DBE subcontractor who has not obtained the dollar value of work identified in the DBE pre-award commitment and has not followed the requirements of Section II-C or for any DBE firm submitted for DBE credit that has not performed a CUF.
4. The Contractor being required to submit a written DBE Program Corrective Action Plan to CTDOT for review and approval, which is aimed at ensuring compliance on future projects.
5. The Contractor being required to attend a Non-Responsibility Meeting on the next contract where it is the apparent low bidder.
6. The Contractor being suspended from bidding on contracts for a period not to exceed six (6) months.

## **VI. CLASSIFICATIONS OTHER THAN SUBCONTRACTORS**

### **A. Material Manufacturers**

Credit for DBE manufacturers is 100% of the value of the manufactured product. A manufacturer is a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor.

If the Contractor elects to utilize a DBE manufacturer to satisfy a portion of, or the entire specified DBE goal, the Contractor must provide the OOC with:

- Subcontractor Approval Form (CLA-12) indicating the firm designation,
- An executed "Affidavit for the Utilization of Material Suppliers or Manufacturers" (sample attached), and
- Substantiation of payments made to the supplier or manufacturer for materials used on the project.

## **B. Material Suppliers (Dealers)**

Credit for DBE dealers/suppliers is limited to 60% of the value of the material to be supplied, provided such material is obtained from an approved DBE dealer/supplier.

In order for a firm to be considered a regular dealer, the firm must own, operate, or maintain a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. At least one of the following criteria must apply:

- To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.
- A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating or maintaining a place of business if the person both owns and operates distribution equipment for the products. Any supplementing of the regular dealers' own distribution equipment shall be by long term lease agreement, and not on an ad hoc or contract to contract basis.
- Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph.

If the Contractor elects to utilize a DBE supplier to satisfy a portion or the entire specified DBE goal, the Contractor must provide the OOC with:

- Subcontractor Approval Form (CLA-12) indicating the firm designation,
- An executed "Affidavit for the Utilization of Material Suppliers or Manufacturers" (sample attached), and
- Substantiation of payments made to the supplier or manufacturer for materials used on the project.

## **C. Brokering**

- Brokering of work for DBE firms who have been listed by the Department as certified brokers is allowed. Credit for those firms shall be applied following the procedures in Section VI-D.
- Brokering of work by DBEs who have been approved to perform subcontract work with their own workforce and equipment is not allowed, and is a Contract violation.
- Firms involved in the brokering of work, whether they are DBEs and/or majority firms who engage in willful falsification, distortion or misrepresentation with respect to any facts related to the project shall be referred to the U.S. DOT, Office of the Inspector General for prosecution under Title 18, U.S. Code, Part I, Chapter 47, Section 1020.

## **D. Non-Manufacturing or Non-Supplier DBE Credit**

Contractors may count towards their DBE goals the following expenditures with DBEs that are not manufacturers or suppliers:

- Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment materials or supplies necessary for the performance of the Contract, provided that the fee or commission is determined by the OOC to be reasonable and consistent with fees customarily allowed for similar services.
- The fees charged only for delivery of materials and supplies required on a job site when the hauler, trucker, or delivery service is a DBE, and not the manufacturer, or regular dealer of the materials and supplies, and provided that the fees are determined by the OOC to be reasonable and not excessive as compared with fees customarily allowed for similar services.
- The fees or commissions charged for providing bonds or insurance specifically required for the performance of the Contract, provided that the fees or commissions are determined by CTDOT to be reasonable and not excessive as compared with fees customarily allowed for similar services.

## **E. Trucking**

While technically still considered a subcontractor, the rules for counting credit for DBE trucking firms are as follows:

- The DBE must own and operate at least one fully licensed, insured, and operational truck used on the Contract.
- The DBE receives credit for the total value of the transportation services it provides on the Contract using trucks it owns, insures and operates using drivers it employs.
- The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the Contract.
- The DBE may lease trucks from a non-DBE firm; however the DBE may only receive credit for any fees or commissions received for arranging transportation services provided by the non-DBE firms. Additionally, the DBE firm must demonstrate that they are in full control of the trucking operation for which they are seeking credit.

## **VII. Suspected DBE Fraud**

In appropriate cases, CTDOT will bring to the attention of the USDOT any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g. referral to the Department of Justice for criminal prosecution, referral to USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49 CFR Part 31.

**CONNECTICUT DEPARTMENT OF TRANSPORTATION  
(OFFICE OF CONSTRUCTION)  
BUREAU OF ENGINEERING AND CONSTRUCTION**

This affidavit must be completed by the State Contractor's DBE notarized and attached to the contractor's request to utilize a DBE supplier or manufacturer as a credit towards its DBE contract requirements; failure to do so will result in not receiving credit towards the contract DBE requirement.

State Contract No.

Federal Aid Project No.

Description of Project

I, \_\_\_\_\_, acting in behalf of \_\_\_\_\_,  
(Name of person signing Affidavit) (DBE person, firm, association or corporation)

of which I am the \_\_\_\_\_ certify and affirm that \_\_\_\_\_  
(Title of Person) (DBE person, firm, association or corporation)

is a certified Connecticut Department of Transportation DBE. I further certify and affirm that I have read and understand 49 CFR, Sec. 26.55(e)(2), as the same may be revised.

I further certify and affirm that \_\_\_\_\_ will assume the actual and  
(DBE person, firm, association or Corporation)  
for the provision of the materials and/or supplies sought by \_\_\_\_\_.

If a manufacturer, I operate or maintain a factory or establishment that produces, on the premises, the materials, supplies, articles or equipment required under the contract an of the general character described by the specifications.

If a supplier, I perform a commercially useful function in the supply process. As a regular dealer, I, at a minimum, own and operate the distribution equipment for bulk items. Any supplementing of my distribution equipment shall be by long-term lease agreement, and not on an ad hoc or contract-by-contract basis.

I understand that false statements made herein are punishable by Law (Sec. 53a-157), CGS, as revised).

(Name of Corporation or Firm)

(Signature & Title of Official making the Affidavit)

Subscribed and sworn to before me, this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_.

Notary Public (Commissioner of the Superior Court)

My Commission Expires \_\_\_\_\_

**CERTIFICATE OF CORPORATION**

I, \_\_\_\_\_, certify that I am the \_\_\_\_\_  
(Official) (President)

of the Corporation named in the foregoing instrument; that I have been duly authorized to affix the seal of the Corporation to such papers as require the seal; that \_\_\_\_\_, who signed said instrument on behalf of the Corporation, was then \_\_\_\_\_ of said corporation; that said instrument was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporation powers.

\_\_\_\_\_  
(Signature of Person Certifying)

\_\_\_\_\_  
(Date)

## **ITEM #0020765A – GUANO ABATEMENT**

### **Description:**

Work under this item shall include the abatement of accumulations of pigeon, bat, bird or other rodent/animal guano and associated work by persons who are knowledgeable, qualified, and trained in the abatement of guano and the subsequent cleaning of the affected environment.

These Specifications govern all work activities that disturb guano. All activities shall be performed in accordance with the current revision of the OSHA General Duty Clause 29 CFR 1910 Section 5(a)(1), OSHA Respiratory Protection Standard 29 CFR 1910.134, OSHA Construction Standards 29 CFR 1926 and applicable Industry Standards and Guidelines on Guano/Microbial Remediation, such as; ACGIH *Bioaerosols: Assessment and Control*, OSHA SHIB 03-10-10 *A Brief Guide to Mold in the Work Place*, and NIOSH Publication 97-146 *Histoplasmosis: Protecting Workers at Risk*.

The guano abatement work shall include the removal and disposal of all guano accumulations as identified on the Contract Plans and Specifications or as directed by the Engineer.

Deviations from these Specifications require the written approval of the Engineer.

### **Materials:**

All materials shall be delivered to the job site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description.

No damaged or deteriorating materials shall be used. If material becomes contaminated with guano, the material shall be decontaminated or disposed of as guano waste material. The cost to decontaminate and dispose of this material shall be at the expense of the Contractor.

Fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating four (4) or six (6) mil thickness.

Six (6) mil polyethylene disposable bags.

Tape (or equivalent) capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.

Cleaning detergents, both non-toxic and biodegradable.

Spray equipment must be capable of mixing necessary chemical agents with water, generating sufficient pressure and volume; and equipped with adequate hose length to access all necessary work areas.

Sanders, grinders, wire brushes and needle-gun type removal equipment shall be equipped with a High Efficiency Particulate Air (HEPA) filtered vacuum dust collection system.

Containers for storage, transportation and disposal of guano waste material shall be impermeable and both air and watertight.

Any planking, bracing, shoring, barricades and/or temporary sheet piling, necessary to appropriately perform work activities shall meet to all applicable federal, state and local regulations.

Air filtration devices and vacuum units shall be equipped with HEPA filters.

## **Construction Methods:**

### **(1) Pre-Abatement Submittals and Notices**

- (a) Fifteen (15) working days prior to the commencement of guano abatement work, the Contractor shall submit to the Engineer for review and acceptance and/or acknowledgment of the following:
  - 1. Documentation dated within the previous twelve (12) months, certifying that all employees have received hazard communication training and understand the use and limits of respiratory equipment to be used; on an initial and annual basis.
  - 2. Documentation dated within the previous twelve (12) months, from a physician certifying that all employees who may be exposed to airborne guano and mold spores in excess of background level have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health affects. Employees shall also be informed of the specific types of respirators they shall be required to wear and the work he/she will be required to perform as well as special workplace conditions such as high temperature, high humidity and chemical contaminants to which he/she may be exposed.
  - 3. Documentation dated within the previous twelve (12) months, of respiratory fit testing for all employees who must don a tight-fitting face piece respirator in order to perform guano abatement activities. This fit testing shall be in accordance with qualitative procedures as detailed in 29 CFR 1910.134.
  - 4. Project time schedule for each phase of work.
  - 5. Name and qualifications of the OSHA Competent Person for the guano abatement activities, shall have a minimum of three years working experience as an environmental abatement site supervisor, shall be capable of identifying existing

guano hazards and shall have the authority to implement corrective measures to eliminate such hazards. The OSHA Competent Person shall be on-site at all times guano abatement is occurring, shall comply with applicable Federal, State and Local regulations which mandate work practices, and shall be capable of performing the work of this contract.

- (b) No abatement shall commence until a copy of all required submittals have been received and found acceptable to the Engineer. Those employees added to the Contractor's original list will be allowed to perform work only upon submittal to, and receipt of, all required paperwork by the Engineer.

## **(2) Guano Abatement Provisions:**

### **(a) General Requirements**

The Abatement Contractor/Subcontractor shall have an OSHA Competent Person on site and in control on the job site at all times during abatement work.

All labor, materials, tools, equipment, services, testing, insurance (with specific coverage for work on guano/spores), and incidentals which are necessary or required to perform the work in accordance with applicable governmental regulations, industry standards and codes, and these Specifications shall be provided by the Contractor. The Contractor shall be prepared to work all shifts and weekends throughout the course of this project as directed by the Engineer.

Prior to beginning work, the Contractor shall perform a visual survey of each work area and review conditions at the site for safety reasons. In addition, the Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.

The Contractor shall:

Shutdown and isolate heating, cooling, and ventilating air systems to prevent contamination and spore dispersal to the other areas of the building.

Shut down and lock out/tag out electrical power, including all receptacles and light fixtures, when feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the site.

Coordinate all power and fire alarm isolation with the appropriate representatives.

When necessary, provide temporary power and adequate lighting and ensure safe installation of electrical equipment, including ground fault protection and power cables, in compliance with applicable electrical codes and OSHA requirements. The Contractor is responsible for proper connection and installation of electrical wiring.

If sufficient electrical service is unavailable, the Contractor may need to supply electrical power to the site by fuel operated generator(s). Electrical power supply shall be sufficient for all equipment required for this project in operation throughout the duration of the project.

In each interior work area, negative pressure must be continuously maintained until the area achieves satisfactory reoccupancy criteria and is approved by the Project Monitor to be deregulated. If interior work phases cannot be subdivided into manageable work areas that can be completed within one shift, negative air pressure must be maintained twenty-four (24) hours per day and the Contractor shall establish temporary electrical service to the site, rather than utilize generators.

Water service may not be available at the site. Contractor shall supply sufficient water for each shift to operate the decontamination shower units as well as to maintain the work areas adequately wet.

Ladders and/or scaffolds shall be in compliance with OSHA requirements, and of adequate length, strength and sufficient quantity to support the scope of work. Use of ladders/scaffolds shall be in conformance with OSHA 29 CFR 1926 Subpart L and X requirements.

Work performed at heights exceeding six feet (6') shall be performed in accordance with the OSHA Fall Protection Standard 29 CFR 1926 Subpart M including the use of fall arrest systems as applicable.

Any data provided to the Contractor regarding guano accumulations identified throughout the structure(s) is for informational purposes only. Under no circumstances shall this information be the sole means used by the Contractor for determining the presence and location of all guano accumulations. Prior to commencement of work, the **Contractor shall verify all field conditions and quantities affecting performance/completion of the work** as described in these Specifications in accordance with OSHA, USEPA, USDOT, DEP standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

The Engineer will provide a Project Monitor to oversee the activities of the Contractor. No abatement work shall be performed until the Project Monitor is on-site. Environmental sampling may be conducted as deemed necessary by the Project Monitor.

Warning signs shall be posted at each entrance to the work area which clearly indicates the area has been regulated as a MICROBIAL REMEDIATION WORK AREA – AUTHORIZED PERSONNEL ONLY.

#### (b) Worker Decontamination Enclosure System

The Contractor shall establish contiguous to the Regulated Work Area, a Worker Decontamination Enclosure System consisting of Equipment Room and Clean Room in series, as detailed below. Access to the Regulated Area shall only be through this enclosure.

Access between rooms in the Worker Decontamination Enclosure System shall be through airlocks. Other effective designs are permissible. The Clean Room and Equipment Room located within the Worker Decontamination Enclosure, shall be contiguously connected with taped airtight edges, thus ensuring the sole source of airflow originates from outside the regulated areas, once a negative pressure differential within Interior Regulated Areas is established.

The Clean Room shall be adequately sized to accommodate workers and shall be equipped with a suitable number of hooks, lockers, shelves, etc., for workers to store personal articles and clothing. Changing areas of the Clean Room shall be suitably screened from areas occupied by the public.

The Equipment Room shall be of sufficient capacity to accommodate the number of workers. The Equipment Room shall be utilized by personnel to remove protective clothing, decontaminate through the use of HEPA vacuums and a wash facility, and clean off sealed waste containers ready for removal from the work area. No worker or other person shall leave a Regulated Area without decontaminating.

#### (c) Containment of Interior Work Areas

Pre-clean the work areas using HEPA filtered equipment (vacuum) and/or wet methods as appropriate, collecting and properly containing all dust and debris as guano contaminated waste. Vacuum units, of suitable size and capabilities for the project, shall have HEPA filters capable of trapping and retaining at least 99.97 percent of all monodispersed particles of three micrometers in diameter or larger. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

After pre-cleaning, movable objects not designated for relocation by others shall be removed from the work areas with the utmost care to prevent damage of any kind and relocated to a temporary storage location coordinated with the Engineer. The Contractor is responsible for protecting all fixed objects that are permanent fixtures or are too large to remove and remain inside the Regulated Area. Fixed objects shall be enclosed with one layer of six (6) mil polyethylene sheeting sealed with tape.

Engineering controls must be implemented to ensure that debris is not dispersed outside of the work area during cleaning/removal process. Such controls involve source containment, limited critical barriers, full poly containment enclosures and/or negative pressure enclosures, based on the size and magnitude of contamination, as directed by the Engineer, and in accordance with Industry Standards and Guidelines.

Critical barriers consisting of a minimum of one (1) layer of six (6) mil polyethylene sheeting, secured at the edges with duct tape, shall be installed to seal off all windows, doorways, skylights, ducts, grilles, diffusers, vents, light fixtures, suspended ceiling tile systems and any other openings between the Regulated Work Areas and the surrounding uncontaminated areas, including the outside of the building. Complete isolation of the work area from adjacent areas

using a minimum of one (1) layer of six (6) mil polyethylene sheeting to create an enclosure and seal with duct tape. HVAC systems within the work area cannot be operating.

HEPA filtered negative air filtration units will be used with the intake in the general work area and exhaust outdoors during removal/cleaning of large or extensive contamination areas, and/or as directed by the Engineer, so as to provide local exhaust ventilation and create a negative pressure enclosure work area. Negative pressure must be maintained continuously in each work area until the area achieves satisfactory verification criteria and is approved by the Engineer for deregulation. A sufficient number of negative air filtration units shall be utilized in each work area to create a negative pressure differential in the range of 0.02 to 0.04 inches of water column between the Regulated Area and surrounding areas, and allow a sufficient flow of air through the area to provide four (4) air changes per hour. Negative air filtration units shall be equipped with four stages of filtration, with the final stage being High Efficiency Particulate Air (HEPA) filtration, and incorporate an automatic warning system to indicate pressure drop or unit failure. Negative pressure shall be measured in each work area by a recording manometer, during the entire project.

Following construction of the containment work area, the containment shall pass a pre-abatement visual inspection by the Competent Person and the Project Monitor prior to commencement of abatement work.

**(d) Alternate work area containment requirements for exterior abatement procedures**

In lieu of the establishment of a negative pressure enclosure (NPE) system as described above, guano accumulations will be removed from exterior work areas within an outdoor Regulated Area(s). The regulated work areas will be established by the use of appropriately labeled barrier tape and postings, as well as source containment, poly drop cloths and local HEPA exhaust ventilation. A remote personnel decontamination unit will also be required.

**(e) Personnel Protection**

The Contractor shall utilize all appropriate engineering controls and safety and protective equipment while performing the work in accordance with applicable standards and guidelines.

Abatement workers should have received hazard communication awareness training on safe work practices associated with guano/microbial abatement, and health effects of guano/microbial spore exposure, be medically approved to perform such work and have received fit testing for respirator use.

Abatement workers conducting the cleaning/removal and all personnel entering the work areas will be required to wear personal protective equipment including the following minimum. The Contractors Competent Person shall ultimately make the exposure/hazard assessment judgement on whether upgraded PPE is required.

1. Negative Pressure Respirators equipped with N-95 filter cartridges
2. Disposable coveralls with a hood

3. Eye protection
4. Appropriate gloves

Respiratory protection shall be provided and shall meet the requirements of OSHA as required in 29 CFR 1910.134. A formal respiratory protection program must be implemented in accordance with 29 CFR 1910.134. The Contractor shall provide respirators from among those approved as being acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

All other necessary personnel protective equipment (i.e. hardhat, work boots, safety glasses, hearing protection, etc.) required to perform the abatement work activities, as deemed necessary by the Competent Person, shall conform to all applicable federal, state and local regulations.

All other qualified and authorized persons entering into a Regulated Area (i.e. Project Monitor, Regulatory Agency Representative) shall adhere to the requirements of personnel protection as stated in this section.

Contractor shall ensure that all workers and authorized persons who enter and leave the work area use a personnel decontamination system.

Contractor shall ensure HEPA filtered local exhaust ventilation is provided in all areas where extensive guano accumulations are to be cleaned/removed to reduce the potential for airborne exposure to spores.

Non-abatement workers shall be kept out of the immediate areas where abatement is ongoing.

#### (f) Removal and Cleaning Methods

The general cleaning/removal procedures specified herein are to be used as a guideline throughout the project. Deviations from specified methods of removal/cleaning must be approved in writing by the Engineer prior to their implementation.

The following details the extent of each phase of operation designated for this project. Phase areas may be combined or divided at the direction of the Engineer. Proceed through the sequencing of the work phases under the direction of the Engineer.

#### **Site Nos. 1, 2, 3 & 4, Waterbury, CT**

#### **Abutments (on & beneath), Piers & Structural Steel (Girders, Bearings Crossbeams, etc.) on Underside of Bridge Nos. 03176, 03177, 03178 & 03179**

**Using trained and appropriately protected staff, remove and dispose of all accumulations of guano, feathers, carcasses, etc. as directed by the Engineer. Clean the areas where removal occurs using biodegradable/non-toxic detergent solutions and HEPA vacuuming. Regulated area(s) shall be established at the perimeter of the work area(s), and access shall**

**be controlled by the Contractor. Utilize dust suppression methods such as misting (not soaking) materials prior to abatement. Poly drop cloths should be used as appropriate to protect objects in direct proximity to the work areas from contamination, and prevent the release of contamination/debris to outside areas. After cleaning the area(s) should be left dry and visibly free from contamination and debris. Utilize damp wiping and HEPA filtered vacuuming techniques for final area cleanup. A remote personnel decontamination unit shall also be utilized. Waste generated from the cleaning process should be removed from the work space in sealed plastic bags to prevent dispersal of spores to non-affected building/work spaces and disposed of as general bulky C&D waste debris. Removal shall be undertaken in accordance with Industry Guidelines. Care should be exercised during guano removal/cleaning to not disturb or release any underlying lead paint which may be present. *Contractor shall be responsible for the erection and safe maintenance of any and all necessary apparatus/equipment to gain access to the work areas and perform the required abatement.***

Contractor shall wet mist all materials/accumulations/surfaces scheduled for removal/cleaning prior to commencing work to minimize airborne dust/spore generation and use damp methods throughout the removal/cleanup process.

Contaminated materials, accumulations and debris that are to be removed must be removed with as little disturbance as possible.

The Contractor shall promptly place the removed material in disposal containers (six (6) mil polyethylene bags, fiber drums, etc.) as it is removed. Large components removed intact may be wrapped in two (2) layers of six (6) mil polyethylene sheeting secured with tape. As the disposal containers are filled, the Contractor shall promptly seal the containers and clean the containers before removal from the work area. Bags shall be securely sealed to prevent accidental opening and leakage by taping in gooseneck fashion. Materials with sharp-edged components (e.g. nails, screws, metal lath, tin sheeting) which could tear polyethylene bags and sheeting shall be placed in clean drums and sealed with locking ring tops. All waste containers shall be leak-tight, (typically consisting of two layers of 6 mil poly (or bags)). Containers shall be decontaminated by wet cleaning and HEPA vacuuming within the decontamination area prior to exiting the regulated area. On site storage of waste containers shall be as dictated and allowed by the Engineer within the extent of construction operations. On site storage of waste containers in public areas, outside of construction containment areas shall not be allowed.

Following material/accumulation removal, Contractor shall thoroughly clean the work area. Cleaning of surfaces and content items, shall utilize wet/damp wiping coupled with a non-toxic, biodegradable detergent wash. Following cleaning, the areas shall be dried and HEPA vacuumed to remove all associated dirt and debris.

The use of biocides, including chlorine bleach, is not recommended during guano/microbial abatement. Biocides are toxic to humans and may cause damage to underlying building substrates. Any use of biocides, fungicides, disinfectants or encapsulants can be done only with the written approval of the Engineer.

After cleaning, the Competent Person and Project Monitor shall perform a post remediation visual inspection of each work area to ensure remediation is complete, that no dust or debris remains on surfaces in the work areas as the result of removal/cleaning operations and the areas have been dried. All surfaces within the Regulated Work Areas, including ledges, beams, and hidden locations shall be inspected for visible residue. Evidence of guano/microbial accumulations/contamination and/or debris identified during this inspection will necessitate further cleaning as heretofore specified. The area shall be re-cleaned at the Contractor's expense, until the standard of cleaning is achieved.

If at any time, the Project Monitor should suspect contamination of areas outside the Regulated Area, the Contractor shall immediately stop all abatement work and take steps to decontaminate these areas and eliminate causes of such contamination.

(g) Quality Assurance/Verification

At a minimum, the affected areas shall be free of visible guano accumulations and debris, free of moldy odors and be left dry.

Surface and airborne types and levels of microbial spores may be tested by the Project Monitor upon completion of the cleaning and sanitizing to assure that the affected areas have been returned to a level equivalent to non-affected/ambient areas. Where samples are collected, acceptable results shall be considered levels less than background (interior non-affected and/or ambient) areas for all microbial genera with similar microbial types and rank order and which do not indicate amplification. Any samples collected shall be analyzed at a laboratory accredited by the AIHA EMPAT program. When sampling is performed, it shall be conducted no less than 1 hour after abatement cleanup work has been completed.

The Engineers on-site Project Monitor will verify compliance with these specifications, conduct post-abatement work area inspections and/or collect post abatement samples, photographs, and/or videos of the cleaned surfaces/work areas as deemed necessary.

If any areas fail inspection/testing, the failed area shall be recleaned by the Contractor and retested at no cost to the Engineer.

(h) Post Abatement Work Area Deregulation

The Contractor shall remove all remaining polyethylene, including critical barriers, and Decontamination Enclosure Systems leaving negative air filtration devices in operation as long as feasible. HEPA vacuum and/or wet wipe any visible residue which is uncovered during this process. All waste generated during this disassembly process shall be discarded as abatement waste.

A final visual inspection of the work area shall be conducted by the Competent Person and the Project Monitor to ensure that all visible accumulations of suspect materials have been removed and that no equipment or materials associated with the abatement project remain.

The Contractor shall restore all work areas and auxiliary areas utilized during work to conditions equal to or better than original. Any damage caused during the performance of the work activity shall be repaired by the Contractor at no additional expense to the Engineer.

(i) Waste Disposal

Waste generated from the removal of guano, while an environmental health hazard, is not classified as a biological waste or hazardous waste. All waste materials generated during abatement shall be disposed of as bulky C&D waste in accordance with CTDEP Solid Waste Management requirements. Contractor shall supply to the Engineer completed shipping papers for each load of waste transported for disposal, indicating the solid waste landfill name and location and quantity of waste disposed of.

**(3) Project Closeout Data:**

The Contractor's site supervisor shall keep a logbook to document daily site activity. The log book shall document the preparation tasks, schedule, engineering controls utilized, abatement work conducted, daily lists of employees on site, exposure/hazard assessment judgements, negative pressure manometric measurement readings, PPE utilized, waste shipping papers, etc.

The Contractor will submit the original log book and any other related documentation to the Engineer within 30 days of completion of work.

Final payment to the Contractor shall not be approved without submission of the reporting materials.

**Method of Measurement:**

The quantity of guano abatement shall be the actual number of cubic feet removed for disposal, completed and accepted, within the lines of the work area as shown on the plans or as ordered by the Engineer.

**Basis of Payment:**

The work will be paid for at the contract unit price per cubic foot for "Guano Abatement", completed, which price shall include the specialty services of the Guano Removal Contractor including: labor, materials, equipment, insurance, submittals, personal protective equipment, temporary enclosures, apparatus/equipment necessary for work area access, utility costs, incidentals, fees and labor incidental to the removal, transport and disposal of guano, including close out documentation.

Final payment for guano abatement will not be made until all the project closeout data submittals have been completed and provided to the Engineer. Once the completed package has been received in its entirety, the Engineer will make the final payment to the Contractor.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|-----------------|-----------------|
| Guano Abatement | Cubic Foot      |

## **ITEM #0020801A – ASBESTOS ABATEMENT**

### **Description:**

Work under this item shall include the abatement of asbestos containing materials (ACM) and associated work by persons who are knowledgeable, qualified, trained and licensed in the removal, treatment, handling, and disposal of ACM and the subsequent cleaning of the affected environment. ACM shall include material composed of any type of asbestos in amounts greater than one percent (1%) by weight. The Contractor performing this work shall possess a valid Asbestos Abatement Contractor license issued by the Connecticut Department of Public Health (CTDPH).

These Specifications govern all work activities that disturb asbestos containing materials. All activities shall be performed in accordance with the current revision of the OSHA General Industry Standard for Asbestos (29 CFR 1926.1001), the OSHA Asbestos in Construction Regulations (29 CFR 1926.1101), the USEPA Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) Regulations (40 CFR Part 61 Subpart M), the CTDPH Standards for Asbestos Abatement, Licensure and Training (19a-332a-1 through 16, 20-440-1 through 9 & 20-441), and the CTDEEP Special Waste Disposal Regulations (22a-209-8(i)).

The asbestos abatement work shall include the removal and disposal of all ACM as identified on the Contract Plans and Specifications prior to the planned renovation/demolition project. This Item 0020801A – Asbestos Abatement was designed by Mr. Stephen Arienti, a State of Connecticut licensed Asbestos Project Designer (#000284).

Deviations from these Specifications require the written approval of the Engineer.

### **Materials:**

All materials shall be delivered to the job site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description.

No damaged or deteriorating materials shall be used. If material becomes contaminated with asbestos, the material shall be decontaminated or disposed of as asbestos-containing waste material. The cost to decontaminate and dispose of this material shall be at the expense of the Contractor.

Fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating four (4) or six (6) mil thickness.

Six (6) mil polyethylene disposable bags shall have pre-printed OSHA/EPA/DOT labels and shall be transparent.

Tape (or equivalent) capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.

Surfactant is a chemical wetting agent added to water to improve penetration and shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester, or equivalent. The surfactant shall be mixed with water to provide a concentration one (1) ounce surfactant to five (5) gallons of water, or as directed by the manufacturer.

Spray equipment must be capable of mixing necessary chemical agents with water, generating sufficient pressure and volume; and equipped with adequate hose length to access all necessary work areas.

Drills, saws, sanders, grinders, wire brushes and needle-gun type removal equipment shall be equipped with a High Efficiency Particulate Air (HEPA) filtered vacuum dust collection system.

Containers for storage, transportation and disposal of asbestos containing waste material shall be impermeable and both air and watertight.

Labels and warning signs shall meet to OSHA 29 CFR 1926.1101, USEPA 40 CFR Part 61.152, and USDOT 49 CFR Part 172 as appropriate.

Encapsulant, a material used to chemically entrap asbestos fibers to prevent these fibers from becoming airborne, shall be of the type which has been approved by the Engineer. Use shall be in accordance with manufacturer's printed technical data. The encapsulant shall be clear and must be compatible with new materials being installed, if any.

Any planking, bracing, shoring, barricades and/or temporary sheet piling, necessary to appropriately perform work activities shall meet all applicable federal, state and local regulations.

Air filtration devices and vacuum units shall be equipped with HEPA filters.

## **Construction Methods:**

### **(1) Pre-Abatement Submittals and Notices**

- (a) The scope of work for this project includes the removal of exterior non-friable ACM, which is not defined as "Asbestos Abatement" under the CTDPH Asbestos Abatement Standards (19a-332a-1) nor as Regulated asbestos containing materials (RACM) under the EPA Asbestos NESHAP. Therefore, the Contractor is **not required to submit an Asbestos Abatement Notification to CTDPH or EPA, prior to the commencement of work, so long as work practices will not render more than 25 square feet (SF) (CTDPH) or 160 SF (EPA) of the exterior non-friable ACM into a friable state.**

- (b) Fifteen (15) working days prior to the commencement of asbestos abatement work, the Contractor shall submit to the Engineer for review and acceptance and/or acknowledgment of the following:
1. Permits and licenses for the removal of asbestos-containing or contaminated materials, including a CTDPH valid asbestos removal contractor's license.
  2. Documentation dated within the previous twelve (12) months, certifying that all employees have received USEPA Model Accreditation Plan approved asbestos worker/supervisor training in the proper handling of materials that contain asbestos; understand the health implications and risks involved, including the illnesses possible from exposure to airborne asbestos fibers; understands the use and limits of respiratory equipment to be used; and understands the results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment as indicated in 29 CFR 1926.1101 on an initial and annual basis, and copies of all employees CTDPH asbestos worker and/or supervisor licenses.
  3. Documentation from the Contractor, typed on company letterhead and signed by the Contractor, certifying that all employees listed therein have received the following:
    - a. medical monitoring within the previous twelve (12) months, as required in 29 CFR 1926.1101;
    - b. respirator fit testing within the previous twelve (12) months as detailed in 29 CFR 1910.134 (for all employees who must also don a tight-fitting face piece respirator).
  4. Copies of the EPA/State-approved certificates for the proposed asbestos landfill.
- (c) No abatement shall commence until a copy of all required submittals have been received and found acceptable to the Engineer. Those employees added to the Contractor's original list will be allowed to perform work only upon submittal to, and receipt of, all required paperwork by the Engineer.

## **(2) Asbestos Abatement Provisions:**

### **(a) General Requirements**

The Abatement Contractor/Subcontractor shall possess a valid State of Connecticut Asbestos Contractor License. Should any portion of the work be subcontracted, the subcontractor must also possess a valid State of Connecticut Asbestos Contractor License. The Asbestos Abatement Site Supervisor employed by the Contractor shall be in control on the job site at all times during asbestos abatement work. All employees of the Contractor who shall perform work (i.e. Asbestos Abatement Site Supervisor, Asbestos Abatement Worker) shall be properly certified/licensed by the State of Connecticut to perform such duties.

All labor, materials, tools, equipment, services, testing, insurance (with specific coverage for work on asbestos), and incidentals which are necessary or required to perform the work in accordance with applicable governmental regulations, industry standards and codes, and these Specifications shall be provided by the Contractor. The Contractor shall be prepared to work all shifts and weekends throughout the course of this project.

Prior to beginning work, the Engineer and Contractor shall perform a visual survey of each work area and review conditions at the site for safety reasons. In addition, the Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.

The Contractor shall, when necessary, provide temporary power and adequate lighting and ensure safe installation of electrical equipment, including ground fault protection and power cables, in compliance with applicable electrical codes and OSHA requirements. The Contractor is responsible for proper connection and installation of electrical wiring.

If sufficient electrical service is unavailable, the Contractor may need to supply electrical power to the site by fuel operated generator(s). Electrical power supply shall be sufficient for all equipment required for this project in operation throughout the duration of the project.

Water service may not be available at the site. Contractor shall supply sufficient water for each shift to operate the decontamination shower units as well as to maintain the work areas adequately wet.

Ladders and/or scaffolds shall be in compliance with OSHA requirements, and of adequate length, strength and sufficient quantity to support the scope of work. Use of ladders/scaffolds shall be in conformance with OSHA 29 CFR 1926 Subpart L and X requirements.

Work performed at heights exceeding six feet (6') shall be performed in accordance with the OSHA Fall Protection Standard 29 CFR 1926 Subpart M including the use of fall arrest systems as applicable.

Data provided regarding asbestos sampling conducted throughout the structure(s) is for informational purposes only. Under no circumstances shall this information be the sole means used by the Contractor for determining the presence, location and/or quantity of all asbestos containing materials. The Contractor shall verify all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA, USEPA, USDOT, DEEP standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

The Engineer will provide a Project Monitor to oversee the activities of the Contractor. No asbestos work shall be performed until the Project Monitor is on-site. Pre-abatement, during abatement and post-abatement air sampling will be conducted as deemed necessary by the

Project Monitor. Waste stream testing will be performed, as necessary, by the Project Monitor prior to waste disposal.

(b) Set-Up

Pre-clean the work areas using HEPA filtered equipment (vacuum) and/or wet methods as appropriate, collecting and properly containing all loose debris as asbestos-containing/asbestos contaminated waste. Vacuum units, of suitable size and capabilities for the project, shall have HEPA filters capable of trapping and retaining at least 99.97 percent of all monodispersed particles of three micrometers in diameter or larger. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

The Contractor shall establish a remote Worker Decontamination Enclosure System consisting of Equipment Room, Shower Room and Clean Room in series, as detailed below. Access to the Regulated Area shall only be through this enclosure.

Access between rooms in the Worker Decontamination Enclosure System shall be through airlocks. Other effective designs are permissible. The Clean Room, Shower Room and Equipment Room located within the Worker Decontamination Enclosure, shall be contiguously connected with taped airtight edges.

The Clean Room shall be adequately sized to accommodate workers and shall be equipped with a suitable number of hooks, lockers, shelves, etc., for workers to store personal articles and clothing. Changing areas of the Clean Room shall be suitably screened from areas occupied by the public.

The Shower Room shall be of sufficient capacity to accommodate the number of workers. One shower stall shall be provided for each eight (8) workers. Showers shall be equipped with hot and cold or warm running water through the use of electric hot water heaters supplied by the Contractor. No worker or other person shall leave a Regulated Area without showering. Shower water shall be collected and filtered using best available technology and disposed of in an approved sanitary drain. Shower stalls and plumbing shall include sufficient hose length and drain system or an acceptable alternate.

The Contractor shall ensure that no personnel or equipment be permitted to leave the Regulated Area until proper decontamination procedures (including HEPA vacuuming, wet wiping and showering) to remove all asbestos debris have occurred.

Post warning signs meeting the specifications of OSHA 29 CFR 1910.1001 and 29 CFR 1926.1101 at each Regulated Area. In addition, signs shall be posted at all approaches to Regulated Areas so that an employee may read the sign and take the necessary protective steps before entering the area. Additional signs may require posting following construction of workplace enclosure barriers.

**Alternate set up requirements for exterior non-friable asbestos abatement procedures**

In lieu of the establishment of a negative pressure enclosure (NPE) system as described by CTDPH Sections 19a-332a-5(c), 5(d), 5(e), and 5(h), non-friable ACM will be removed from exterior work areas within an outdoor Regulated Area(s). The regulated work area will be established by the use of appropriately labeled barrier tape and postings in compliance with CTDPH 19a-332a-5(a) as well as OSHA 29 CFR 1926.1101. A remote personnel decontamination unit as specified in Section 19a-332a-6 will be required. This method shall only be utilized provided exposure assessment air sampling data collected during the removal of the exterior non-friable materials indicates that the exposure levels during removal of such materials do not exceed 0.1 asbestos f/cc. Should exposure assessment air sampling data exceed this level, and engineering efforts to reduce the airborne fiber levels not be successful in reducing the levels to less than 0.1 f/cc, removal shall occur within these areas under full containment conditions.

#### (c) Personnel Protection

The Contractor shall utilize all appropriate engineering controls and safety and protective equipment while performing the work in accordance with OSHA, USEPA, USDOT, CTDEEP and CTDPH regulations.

The Contractor shall provide and require all workers to wear protective clothing in the Regulated Areas where asbestos fiber concentrations may reasonably be expected to exceed the OSHA established Permissible Exposure Limits (PEL) or where asbestos contamination exists. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings.

Respiratory protection shall be provided and shall meet the requirements of OSHA as required in 29 CFR 1910.134, and 29 CFR 1926.1101 as well as the requirements of the CTDPH regulations. A formal respiratory protection program must be implemented in accordance with 29 CFR 1926.1101 and 29 CFR 1910.134. The Contractor shall provide respirators from among those approved as being acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

All other necessary personnel protective equipment (i.e. hardhat, work boots, safety glasses, hearing protection, etc.) required to perform the asbestos abatement work activities shall meet all applicable federal, state and local regulations.

All other qualified and authorized persons entering into a Regulated Area (i.e. Project Monitor, Regulatory Agency Representative) shall adhere to the requirements of personnel protection as stated in this section.

#### (d) Asbestos Abatement Procedures

The Asbestos Abatement Site Supervisor, as the OSHA Competent Person shall be at the site at all times.

The Contractor shall not begin abatement work until authorized by the Project Monitor, following a pre-abatement visual inspection.

All workers and authorized persons shall enter and leave the Regulated Area through the Worker Decontamination Enclosure System, leaving contaminated protective clothing in the Equipment Room for reuse or disposal of as asbestos contaminated waste. No one shall eat, drink, smoke, chew gum or tobacco, or apply cosmetics while in a Regulated Area.

The following details the extent of each phase of operation designated for this project. Phase areas may be combined or divided at the direction of the Engineer. Proceed through the sequencing of the work phases under the direction of the Engineer.

**Site No. 1 – Bridge No. 03176, Route 8 SB over Naugatuck River, Waterbury, CT**

**Includes the removal of:**

- **White brittle caulking between metal railing supports and parapet walls**
- **Black insulation/coating on pipe (west side of Bridge No. 03176)\*\***

**A regulated area(s) shall be established at the perimeter of the work area(s), and access shall be controlled by the Contractor. A remote personnel decontamination unit shall be utilized. Removal shall be undertaken in accordance with OSHA Class II and USEPA Asbestos NESHAP requirements.**

**\*\*Note: The above material is presently presumed to be an asbestos containing material (ACM). Should the material be scheduled to be impacted, it should be treated as ACM unless sampled by the Engineer and confirmed as non-ACM.**

**Site No. 2 – Bridge No. 03177, Route 8 NB over Naugatuck River, Waterbury, CT**

**Includes the removal of:**

- **White brittle caulking between metal railing supports and parapet walls**

**A regulated area(s) shall be established at the perimeter of the work area(s), and access shall be controlled by the Contractor. A remote personnel decontamination unit shall be utilized. Removal shall be undertaken in accordance with OSHA Class II and USEPA Asbestos NESHAP requirements.**

**Site No. 3 – Bridge No. 03178, Route 8 SB over Metro North Railroad, Waterbury, CT**

**Includes the removal of:**

- **White brittle caulking between metal railing supports and parapet walls**

**A regulated area(s) shall be established at the perimeter of the work area(s), and access shall be controlled by the Contractor. A remote personnel decontamination unit shall be utilized. Removal shall be undertaken in accordance with OSHA Class II and USEPA Asbestos NESHAP requirements.**

**Site No. 4 – Bridge No. 03179, Route 8 NB over Metro North Railroad, Waterbury, CT**

**Includes the removal of:**

- **White brittle caulking between metal railing supports and parapet walls**

**A regulated area(s) shall be established at the perimeter of the work area(s), and access shall be controlled by the Contractor. A remote personnel decontamination unit shall be utilized. Removal shall be undertaken in accordance with OSHA Class II and USEPA Asbestos NESHAP requirements.**

**Upon discovery of any previously unidentified suspect ACM material during construction activities, work shall cease immediately until the Engineer can determine the extent of any ACM impact and implement proper procedures.**

During removal, the Contractor shall spray asbestos materials with amended water using airless spray equipment capable of providing a "mist" application to reduce the release of airborne fibers. Spray equipment shall be capable of mixing wetting agent with water and capable of generating sufficient pressure and volume. Hose length shall be sufficient to reach all of the Regulated Area. Do not "flood" the area with hose type water supply equipment with the potential to create water releases and/or run-off from the regulated area.

The Contractor shall continue to spray the asbestos materials with amended water, as necessary, throughout removal activities to ensure the asbestos materials remain adequately wet. The asbestos materials shall not be allowed to dry out.

In order to minimize airborne asbestos concentrations inside the Regulated Area, the Contractor shall remove the adequately wetted asbestos in manageable sections. In addition, asbestos materials removed from any elevated level shall be carefully lowered to the floor.

The Contractor shall promptly place the adequately wet asbestos material in disposal containers (six (6) mil polyethylene bags/fiber drum/poly-lined dumpsters, etc.) as it is removed. Large components removed intact may be wrapped in two (2) layers of six (6) mil polyethylene sheeting secured with tape. As the disposal containers are filled, the Contractor shall promptly

seal the containers, apply caution labels and clean the containers before transportation from the regulated area. Bags shall be securely sealed to prevent accidental opening and leakage by taping in gooseneck fashion. Small components and asbestos-containing waste with sharp-edged components (e.g. nails, screws, metal lath, tin sheeting) which could tear polyethylene bags and sheeting shall be placed in clean drums and sealed with locking ring tops. All waste containers shall be leak-tight, (typically consisting of two layers of 6 mil poly (or bags)), and shall be properly labeled and placarded with OSHA Danger labels, DOT shipping labels, markings and placards and USEPA NESHAP generators labels. Containers shall be decontaminated by wet cleaning and HEPA vacuuming prior to exiting the regulated area.

If at any time during asbestos removal, the Project Monitor should suspect contamination of areas outside the Regulated Area, the Contractor shall immediately stop all abatement work and take steps to decontaminate these areas and eliminate causes of such contamination. Unprotected individuals shall be prohibited from entering contaminated areas until air sampling and/or visual inspections determine decontamination.

After completion of abatement work, all surfaces from which asbestos has been removed shall be wet brushed, using a nylon brush, wet wiped and sponged or cleaned by an equivalent method to remove all visible material (wire brushes are not permitted). During this work the surfaces being cleaned shall be kept wet. Cleaning shall also include the use of HEPA filtered vacuum equipment.

The Contractor shall also remove and containerize all visible accumulations of asbestos-containing and/or asbestos-contaminated debris which may have splattered or collected on the polyethylene engineering controls/barriers.

The Contractor shall remove contamination from the exteriors of the scaffolding, ladders, extension cords, hoses and other equipment inside the Regulated Area. Cleaning may be accomplished by brushing, HEPA vacuuming and/or wet cleaning. The Contractor shall wet wipe the Regulated Area using cotton rags or lint free paper towels. Rags and towels shall be disposed of after each use. Workers should avoid the use of dirty rags to insure proper cleaning of surfaces. Waste water shall be filtered using best available technology into leak-proof containers prior to being transported to a sanitary sewer for discharge.

Once the Regulated Area surfaces have dried, the Project Monitor shall perform a thorough post abatement visual inspection utilizing protocols from the ASTM Standard E1368-90 *Standard Practice for Visual Inspection of Asbestos Abatement Projects*. All surfaces within the Regulated Area, including but not limited to ledges, beams, and hidden locations shall be inspected for visible residue. Evidence of asbestos contamination identified during this inspection will necessitate further cleaning as heretofore specified. The area shall be re-cleaned at the Contractor's expense, until the standard of cleaning is achieved.

Once the area has received a satisfactory post-abatement visual inspection, any equipment, tools or materials not required for completion of the work, shall be removed by the Contractor from the Regulated Area.

## (e) Air Monitoring Requirements

## 1. The Contractor shall:

- a. Provide air monitoring equipment including sample filter cassettes of the type and quantity required to properly monitor operations and personnel exposure surveillance throughout the duration of the project.
- b. Conduct personnel exposure assessment air sampling, as necessary, to assure that workers are using appropriate respiratory protection in accordance with OSHA Standard 1926.1101. Documentation of air sampling results must be recorded at the work site within twenty-four (24) hours and shall be available for review until the job is complete.

## 2. The Project Monitor, acting as the representative of the Engineer during abatement activities, will:

- a. Collect air samples in accordance with the current revision of the NIOSH 7400 Method of Air Sampling for Airborne Asbestos Fibers while overseeing the activities of the Abatement Contractor. Frequency and duration of the air sampling during abatement will be representative of the actual conditions at the abatement site. The size and configuration of the asbestos project will be a factor in the number of samples required to monitor the abatement activities and shall be determined by the Project Monitor. The following schedule of samples may be collected by the Project Monitor:

## 1. Pre-Abatement (Optional)

- a. Background areas
- b. Area(s) adjacent to Work Area(s)
- c. Work Area(s)

## 2. During Abatement (Optional)

- a. Within Regulated Area(s)
- b. Area(s) adjacent to Regulated Areas(s)  
(exterior to critical barriers)
- c. At the Decontamination Enclosure System

| Abatement Activity           | Pre-<br>Abatement | During<br>Abatement | Post-<br>Abatement |
|------------------------------|-------------------|---------------------|--------------------|
| Exterior Friable/Non-Friable | ---               | PCM                 | ---                |

If air samples collected outside of the Regulated Area during abatement activities indicate airborne fiber concentrations greater than original background levels, or greater than 0.1 f/cc, as determined by Phase Contrast Microscopy, whichever is larger, an examination of the Regulated Area perimeter shall be conducted and the integrity of barriers shall be restored. Cleanup of surfaces outside the Regulated Area using HEPA vacuum equipment or wet cleaning techniques shall be done prior to resuming abatement activities.

(f) Post Abatement Work Area Deregulation

The Contractor shall remove all remaining polyethylene, including critical barriers, drop-cloths, and Decontamination Enclosure Systems. HEPA vacuum and/or wet wipe any visible residue which is uncovered during this process. All waste generated during this disassembly process shall be discarded as ACM waste.

A final visual inspection of the work area shall be conducted by the Competent Person and the Project Monitor to ensure that all visible accumulations of suspect materials have been removed and that no equipment or materials associated with the abatement project remain.

The Contractor shall restore all work areas and auxiliary areas utilized during work to conditions equal to or better than original. Any damage caused during the performance of the work activity shall be repaired by the Contractor at no additional expense to the Engineer.

(g) Waste Disposal

Unless otherwise specified, all removed materials and debris resulting from execution of this project shall become the responsibility of the Contractor and removed from the premises. Materials not scheduled for reuse shall be removed from the site and disposed of in accordance with all applicable Federal, State and Local requirements.

Waste removal dumpsters and cargo areas of transport vehicles shall be lined with a layer of six (6) mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed first, and shall be extended up sidewalls 12-inches. Wall sheeting shall overlap floor sheeting 24-inches and shall be taped into place.

OSHA "Danger" signs must be attached to vehicles used to transport asbestos-containing waste prior to loading ACM waste. The signs must be posted so that they are plainly visible.

Ensure all waste containers (bags, drums, etc.) are properly packed, sealed and labeled with USEPA NESHAP generator labels, OSHA danger labels and DOT shipping labels. For each shipment of ACM waste, the Contractor shall complete an EPA-approved asbestos waste shipment record.

Authorized representatives signing waste shipment records on behalf of the generator must have USDOT Shipper Certification training in accordance with HMR 49 CFR Parts 171-180.

Transport vehicles hauling ACM waste shall have appropriate USDOT placards visible on all four (4) sides of the vehicle.

The Contractor shall dispose of asbestos-containing and/or asbestos contaminated material at an EPA authorized site and must be in compliance with the requirements of the Special Waste Provisions of the Office of Solid Waste Management, Department of Energy & Environmental Protection, State of Connecticut, or other designated agency having jurisdiction over solid waste disposal.

Any asbestos-containing and/or asbestos-contaminated waste materials which also contain other hazardous contaminants shall be disposed of in accordance with the EPA's Resource Conservation and Recovery Act (RCRA), CTDEEP and ConnDOT requirements. Materials may be required to be stored on-site and tested by the Project Monitor to determine proper waste disposal requirements.

(h) Project Closeout Data:

1. Provide the Engineer, within 30 days of completion of asbestos abatement, a compliance package; which shall include the following:
  - a. Asbestos Abatement Site Supervisor job log;
  - b. OSHA personnel air sampling data;
  - c. Completed waste shipment records.

The Contractor shall submit the original completed waste shipment records to the Engineer.

**Method of Measurement:**

No measurement will be made for the work in this Section. The completed work shall be paid as a lump sum.

**Basis of Payment:**

The lump sum bid price for this item shall include the specialty services of the Asbestos Removal Contractor including: labor, materials, equipment, insurance, permits, notifications, submittals, personal air sampling, personal protection equipment, temporary enclosures, utility costs, incidentals, fees and labor incidental to the removal, transport and disposal of ACM, including close out documentation.

Final payment for asbestos abatement will not be made until all the project closeout data submittals have been completed (including waste shipment record(s) signed by an authorized disposal facility representative) and provided to the Engineer. Once the completed package has been received in its entirety, the Engineer will make the final payment to the Contractor.

**Pay Item**

Asbestos Abatement

**Pay Unit**

Lump Sum

## **ITEM #0020905A – LEAD COMPLIANCE FOR ABRASIVE BLAST CLEANING AND MISCELLANEOUS TASKS**

**Description:** Work under this item shall include the special handling measures and work practices required for abrasive blast cleaning activities and other miscellaneous tasks, principally involved in bridge coating removal/painting and other renovation operations, which impact materials containing or covered by lead paint. Examples of typical miscellaneous exterior tasks includes: work impacting signs, guiderails, minor bridge rehabilitation, catenary structures, canopy structures, spot/localized paint removal, etc. Lead paint includes paint found to contain any detectable amount of lead by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF).

All activities shall be performed in accordance with the OSHA Lead in Construction Regulations (29 CFR 1926.62), the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260 through 274), the CTDEEP Hazardous Waste Regulations (RCSA 22a-209-1 and 22a-449(c)), and SSPC Guide 6 – Guide for Containing Debris Generated During Paint Removal Operations.

All activities shall be performed by individuals with appropriate levels of OSHA lead awareness and hazard communication training, supervised at all times by the Contractor's Competent Person, and periodically inspected by personnel working for an industrial hygiene firm (IH firm), retained by the Contractor, under the direct supervision of a Certified Industrial Hygienist (CIH). Periodic inspections shall be conducted at least weekly while work impacting lead is occurring, but shall be as frequent as necessary to maintain Contractor compliance with the OSHA Lead Construction Standards. The Contractor's Competent Person shall be on-Site at all times that the work impacting lead is being performed and shall be capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and has authorization to take prompt corrective measures to eliminate them.

Deviations from these Specifications require the written approval of the Engineer.

This item does not include the work to remove existing paint. Refer to other Contract items for paint removal special provisions.

### **Materials:**

All materials shall be delivered to the Site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description, with MSDS sheets as applicable.

No damaged or deteriorating materials shall be used. If material becomes contaminated with lead, the material shall be decontaminated or disposed of as lead-containing waste material. The cost to decontaminate and dispose of said material shall be at the Contractor's expense.

The following material requirements shall be met, where applicable:

Fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating minimum six (6) mil thickness.

Polyethylene disposable bags shall be minimum six (6) mils thick.

Tape (or equivalent product) capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.

Cleaning Agents and detergent shall be lead specific, such as TriSodium Phosphate (TSP).

Chemical strippers and chemical neutralizers shall be compatible with the substrate as well as with each other. Such chemical stripper shall contain less than 50% volatile organic compounds (VOCs) by weight in accordance with RCMA 22a-174-40 Table 40-1.

Labels and warning signs shall meet to 29 CFR 1926.62, 40 CFR 260 through 274 and 49 CFR 172 as appropriate.

Air filtration devices and vacuum units shall be equipped with High-Efficiency Particulate Air (HEPA) filters.

## **Construction Methods:**

### **(1) Pre-Abatement Submittals and Notices**

A. Prior to the start of **any** work that will generate hazardous lead waste above conditionally exempt small quantities (greater than 100 kg/month or greater than 1000 kg stored at any time), the Contractor shall obtain from the Engineer, on a contiguous per Site basis, a temporary EPA Hazardous Waste Generators ID number, in accordance with this Item #0020905A, unless otherwise directed by the Engineer. Temporary EPA ID numbers are good for six (6) months from the date they are issued and can be extended once, for a maximum of six (6) months and shall not be used for longer than one (1) year. The Contractor shall notify the Engineer when an extension is needed.

B. Fifteen (15) working days prior to beginning work that impacts lead paint, the Contractor shall submit four (4) copies of each of the following to the Engineer:

1. A written Site-specific Lead Compliance Work Plan, prepared and stamped by a Certified Industrial Hygienist (CIH) that covers all workers on the Project (Contractor, Subcontractor and CTDOT representatives). The Lead Compliance Work Plan shall be prepared in accordance with 29 CFR 1926.62(e), and shall include: descriptions of each activity impacting lead; procedures for engineering controls, methods of containment, work practices, and administrative controls to be employed; daily on-Site inspections by the Competent Person; periodic on-Site inspections by IH firm personnel (describe frequency and inspection criteria); hazard communication/training; medical surveillance;

biological monitoring; exposure assessment; air monitoring; personal protective equipment (PPE); respiratory protection; housekeeping; decontamination; procedures for waste containment, storage, handling and disposal; contents of the job completion close-out report; and all other procedures that may be necessary to comply with 29 CFR 1926.62 and 40 CFR 260 – 274 and minimize employee exposure and prevent the spread of lead contamination outside the Regulated Area, as defined herein.

2. Copies of all employee certificates, dated within the previous twelve (12) months, relating to OSHA lead awareness and hazard communication training and training in the use of lead-safe work practices. SSPC training programs, such as SSPC C-5 Deleading of Industrial Structures may be accepted as meeting these requirements if it can be demonstrated that such training addressed all required OSHA topics.

This information shall be updated and resubmitted annually, or as information changes, for the duration of lead removal work in order to verify continued compliance.

3. Name and qualifications of Contractor's OSHA Competent Person, as defined under 29 CFR 1926.62, who will be on-Site at all times that the work impacting lead paint is being performed.
4. Name and qualifications of IH firm personnel that will be performing the periodic on-Site inspections. Such personnel shall work under the direct supervision of the same CIH who stamped the Lead Compliance Work Plan and have training within the previous twelve (12) months for OSHA lead awareness and the use of lead-safe work practices or equivalent. Such personnel shall also have a minimum of two (2) years' work experience related to the OSHA Lead in Construction Standard and be capable of recognizing the hazards associated therewith.
5. Documentation from the Contractor, on company letterhead and signed by the Contractor, certifying that all employees listed therein have received the following, and are medically fit to perform the work impacting lead:
  - a. medical monitoring within the previous twelve (12) months, as required in 29 CFR 1926.62;
  - b. biological monitoring within the previous six (6) months, as required in 29 CFR 1926.62;
  - c. respirator fit testing within the previous twelve (12) months, as required in 29 CFR 1910.134 (for employees who wear a tight-fitting face piece respirator)

This information shall be updated and resubmitted every six (6) months, or as information changes, for the duration of lead removal work in order to verify continued compliance.

6. Name(s) of the proposed non-hazardous, non RCRA lead debris waste disposal facility.

7. Name(s) of the proposed scrap metal recycling facility. The Contractor shall submit to the Engineer all documentation necessary to demonstrate the selected facility is able to accept lead-painted metal.
8. Name(s) of the proposed hazardous waste disposal facility (selected from the Department-approved list provided under Item 0603222A), and copies of each facilities' acceptance criteria and sampling frequency requirements.
9. Copies of the proposed hazardous waste transporters' current USDOT Certificate of Registration for Hazardous Materials Transport, and the proposed transporters' current Hazardous Waste Transporter Permits for the State of Connecticut and the waste destination State.
10. Negative exposure assessments conducted within the previous twelve (12) months documenting that employee exposure to lead for each task is below the OSHA Action Level of  $30 \mu\text{g}/\text{m}^3$ . If a negative exposure assessment has not been conducted, the Contractor shall submit its air monitoring program for the work tasks as part of the Lead Compliance Work Plan. Until a negative exposure assessment is developed for each task impacting lead paint, the Contractor shall ensure that all workers and authorized persons entering the Regulated Area wear protective clothing and respirators in accordance with OSHA 29 CFR 1926.62.

No activity shall commence until all required submittals have been received and found acceptable to the Engineer. Those employees added to the Contractor's original list will be allowed to perform work only upon submittal of acceptable documentation to, and review by, the Engineer.

The Contractor shall provide the Engineer with a minimum of 48 hours' notice in advance of scheduling, changing or canceling work activities.

## **(2) Lead Abatement Provisions**

### **A. General Requirements:**

All employees of the Contractor who perform work impacting lead paint shall be properly trained to perform such duties. In addition, the Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this Project.

The Contractor shall provide all labor, materials, tools, equipment, services, testing, and incidentals which are necessary or required to perform the work in accordance with applicable governmental regulations, industry standards and codes, and these Specifications.

Prior to beginning work, the Engineer and Contractor shall perform a visual survey of each work area and review conditions.

As necessary, the Contractor shall:

- Shut down and lock out electrical power, including all receptacles and light fixtures, where feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the Site.
- Coordinate all power and fire alarm isolation with the appropriate representatives.

If adequate electrical supply is not available at the Site, the Contractor shall supply temporary power. Such temporary power shall be sufficient to provide adequate lighting and power the Contractor's equipment. The Contractor is responsible for proper connection and installation of electrical wiring and shall ensure safe installation of electrical equipment in compliance with applicable electrical codes and OSHA requirements.

If water is not available at the Site for the Contractor's use, the Contractor shall supply sufficient water for each shift to operate the wash facility/decontamination shower units in addition to the water needed at the work area.

The Engineer may provide a Project Monitor to monitor compliance of the Contractor and protect the interests of the Department. In such cases, no activity impacting lead paint shall be performed until the Project Monitor is on-Site. Where no Project Monitor is provided, Contractor shall proceed at the direction of the Engineer. Environmental sampling, including ambient air sampling, TCLP waste stream sampling, and dust wipe sampling, will be conducted by the State as it deems necessary throughout the Project. Any Project Monitor provided by the Engineer is supplementary to the requirement for the Contractor to have periodic inspections performed at a frequency to ensure/document Contractor compliance with the regulations and the requirements of the Contractor's Lead Compliance Work Plan. Air monitoring to comply with the Contractor's obligations under OSHA remains solely the responsibility of the Contractor.

If at any time, procedures for engineering, work practice, administrative controls or other topics are anticipated to deviate from those documented in the submitted and accepted Lead Compliance Work Plan, the Contractor shall submit a modification of its existing plan for review and acceptance by the Engineer prior to implementing the change.

If air samples collected outside of the Regulated Area during activities impacting lead paint indicate airborne lead concentrations greater than original background levels or 30 ug/m<sup>3</sup>, whichever is larger, or if at any time visible emissions of lead paint extend out from the Regulated Area, an examination of the Regulated Area shall be conducted and the cause of such emissions corrected. Cleanup of surfaces outside the Regulated Area using HEPA vacuum equipment or wet cleaning techniques shall be done prior to resuming work.

Work outside the initial designated area(s) will not be paid for by the Engineer. The Contractor will be responsible for all costs incurred from these activities including repair of any damage.

B. Regulated Area:

The Contractor shall establish a Regulated Area through the use of appropriate barrier tape or other means to control unauthorized access into the area where activities impacting lead paint are occurring. Warning signs meeting the requirements of 29 CFR 1926.62 shall be posted at all approaches to Regulated Areas. These signs shall read:

DANGER  
LEAD WORK AREA  
MAY DAMAGE FERTILITY OR THE UNBORN CHILD  
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM  
DO NOT EAT, DRINK, OR SMOKE IN THIS AREA

The Contractor shall also implement appropriate engineering controls, such as poly drop cloths, local exhaust ventilation, wet dust suppression methods, etc., as necessary, or where Abrasive Blast Cleaning is to be performed, a full negative pressure enclosure, in accordance with Item #0603563A "Class I Containment & Collection of Surface Preparation Debris (Site No. X)," and wet dust suppression methods, etc., as necessary, and as approved by the Engineer, to prevent the spread of lead contamination beyond the Regulated Area in accordance with the Contractor's approved Lead Compliance Work Plan. Should the previously submitted plan prove to be insufficient to contain the contamination, the Contractor shall submit a modified plan for review by the Engineer.

Any air exhausted from the containment enclosure, abrasive-recycling equipment or vacuum equipment shall be passed through a HEPA filtering system. The Contractor is responsible for the design, effectiveness and maintenance of this filtering system. No discharge of debris dust shall be allowed.

#### C. Wash Facilities:

The Contractor shall provide handwash facilities in compliance with 29 CFR 1926.51(f) and 29 CFR 1926.62 regardless of airborne lead exposure.

If employee exposure to airborne lead exceeds the OSHA Permissible Exposure Limit of 50 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), shower rooms must be provided. The Shower Room shall be of sufficient capacity to accommodate the number of workers. One (1) shower stall shall be provided for each eight (8) workers. Showers shall be equipped with hot and cold or warm running water. Shower water shall be collected and filtered using best available technology and disposed of in accordance with all Federal, State and local laws, regulations and ordinances.

#### D. Personal Protection:

The Contractor shall initially determine if any employee performing construction tasks impacting lead paint may be exposed to lead at or above the OSHA Action Level of  $30 \mu\text{g}/\text{m}^3$ . Assessments shall be based on initial air monitoring results as well as other relevant information. The Contractor may rely on historical air monitoring data obtained within the past twelve (12) months under workplace conditions closely resembling the process, type of material, control methods,

work practices and environmental conditions used and prevailing in the Contractors current operations to satisfy the exposure assessment requirements. Monitoring shall continue as specified in the OSHA standard until a negative exposure assessment is developed.

Until a negative exposure assessment is developed for each task impacting lead paint, the Contractor shall ensure that all workers and authorized persons entering the Regulated Area wear protective clothing and respirators in accordance with OSHA 29 CFR 1926.62. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings. Sufficient quantities shall be provided to last throughout the duration of the Project.

Protective clothing provided by the Contractor and used during chemical removal operations shall be impervious to caustic materials. Gloves provided by the Contractor and used during chemical removal shall be of neoprene composition with glove extenders.

Respiratory protective equipment shall be provided and selection shall conform to 42 CFR Part 84, 29 CFR Part 1910.134, and 29 CFR Part 1926.62. A formal respiratory protection program must be implemented in accordance with 29 CFR Part 1926.62 and Part 1910.134.

#### E. Air Monitoring Requirements:

The Contractor shall:

1. Provide air monitoring equipment including sample filter cassettes of the type and quantity required to properly monitor operations and personnel exposure surveillance throughout the duration of the Project.
2. Conduct initial exposure monitoring to determine if any employee performing construction tasks impacting lead paint may be exposed to lead at or above the OSHA Action Level of 30 micrograms per cubic meter. Monitoring shall continue as specified in the OSHA standard until a negative exposure assessment is developed.
3. Conduct personnel exposure assessment air sampling, as necessary, to assure that workers are using appropriate respiratory protection in accordance with OSHA Standard 1926.62 or the approved Lead Compliance Work Plan. Documentation of air sampling results must be recorded at the work Site within twenty-four (24) hours and shall be available for review until the job is complete.

#### F. Periodic Inspections of Abrasive Blast Cleaning Operations:

Where Abrasive Blast Cleaning Operations are to take place, the Contractor shall retain the services of IH firm personnel, working under the direct supervision of the same CIH who stamped the Lead Compliance Work Plan, to perform periodic inspections of the Site work practices and engineering controls, on a frequency to ensure/document Contractor compliance with the regulations. Periodic inspections shall be performed at least weekly while work impacting lead is occurring, but shall be at the frequency necessary to maintain Contractor compliance with the

OSHA Lead in Construction Standard. Any exceptions to 29 CFR 1926.62 or the accepted Lead Compliance Work Plan shall be reported to the Contractor and the Engineer prior to the IH firm personnel leaving the Site and corrected immediately.

All findings of such periodic inspections shall be documented in writing to the Engineer no later than ten (10) days following the Site visit. At a minimum, the inspection report shall document the following:

1. Description of current work activities
2. Description of engineering controls being implemented
3. Description of PPE being utilized
4. Description of visual review of containment system effectiveness
5. Results of all air sampling received since date of last report
6. Narrative interpreting sample results and making recommendations as necessary
7. Description of waste management practices being utilized
8. Descriptions of exceptions noted and corrective action taken

The report shall include a signature from the IH firm employee that performed the Site inspection verifying that the Contractor's work practices are in compliance with 29 CFR 1926.62 and the previously submitted and accepted Lead Compliance Work Plan. The CIH shall sign verifying their concurrence.

#### G. Lead Abatement Procedures:

The Contractor's Competent Person shall be at the Site at all times during work impacting lead.

Work impacting lead paint shall not begin until authorized by the Engineer, following a pre-work visual inspection by the Project Monitor or Engineer to verify existing conditions.

Any activity impacting lead painted surfaces shall be performed in a manner which minimizes the spread of lead dust contamination and generation of airborne lead.

**The Contractor shall conduct exposure assessments for all tasks which impact lead paint in accordance with 29 CFR 1926.62(d) and shall implement appropriate personal protective equipment until negative exposure assessments are developed.**

**All work impacting the lead containing/coated materials shall be conducted within an established Regulated Area with a remote wash facility/decontamination system in accordance with "C. Wash Facilities" and the OSHA Lead in Construction Standard. In accordance with 29 CFR 1926.62, engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the Regulated Area and limit the generation of airborne lead. For Abrasive Blast Cleaning Operations, such engineering controls shall include the use of a full negative pressure enclosure (NPE) in accordance with SSPC Guide 6 and Item #0603563A. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.**

The Contractor shall ensure proper entry and exit procedures for workers and authorized persons who enter and leave the Regulated Area. All workers and authorized persons shall leave the Regulated Area and proceed directly to the wash or shower facilities where they will HEPA vacuum gross debris from work suit, remove and dispose of work suit, wash and dry face and hands, and vacuum clothes. Lead chips and dust must not be removed by blowing or shaking of clothing. Wash water shall be collected, filtered, and disposed of in accordance with Federal, State and local water discharge standards. Any permit required for such discharge shall be the responsibility of the Contractor.

Personnel shall be advised that they must not eat, drink, smoke, chew gum or tobacco, nor apply cosmetics while in the Regulated Area.

Data from the limited lead testing performed by the Engineer is documented in the reports listed in the “Notice to Contractor – Hazardous Materials Investigations” or is presented herein. Under no circumstances shall this information be the sole means used by the Contractor for determining the extent of lead painted materials. The Contractor shall be responsible for verification of all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA, USEPA, USDOT and CTDEEP standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

**Site No. 1 – Bridge No. 03176, Route 8 SB over Naugatuck River, Waterbury, CT**

- No detectable amounts of lead were identified on the painted structural steel/metal/concrete bridge surfaces.

|  |                 |                               |   |
|--|-----------------|-------------------------------|---|
| <b>Girders, Cross Beams, Beam Ends, Bearings, Rockers, Diaphragms, Connection plates, etc.</b> | <b>Metal</b>    | <b>Green/White</b>            | <b>0.0 mg/cm<sup>2</sup><br/>ND&lt; 0.10% by weight</b> |
| <b>Concrete abutments/piers</b>  | <b>Concrete</b> | <b>Grey</b>                   | <b>0.0 mg/cm<sup>2</sup><br/>ND&lt;0.10% by weight</b>  |
| <b>Railings, Railing Supports, etc.</b>  | <b>Metal</b>    | <b>Galvanized (unpainted)</b> | <b>0.0 mg/cm<sup>2</sup></b>                            |

- Since no detectable amounts of lead in paint were identified on the structural steel/metal bridge components & concrete abutments/piers, any paint waste generated from those components would be characterized as non-hazardous.

**Site No. 2 – Bridge No. 03177, Route 8 NB over Naugatuck River, Waterbury, CT**

- No detectable amounts of lead were identified on the painted structural steel/metal/concrete bridge surfaces.

|   |          |                        |   |
|---|----------|------------------------|---|
| Girders, Cross Beams, Beam Ends, Bearings, Rockers, Diaphragms, Connection plates, etc. | Metal    | Green/White            | 0.0 mg/cm <sup>2</sup><br>ND< 0.10% by weight |
| Concrete abutments/piers  | Concrete | Grey                   | 0.0 mg/cm <sup>2</sup><br>ND< 0.10% by weight |
| Railings, Railing Supports, etc.  | Metal    | Galvanized (unpainted) | 0.0 mg/cm <sup>2</sup>                        |

- Since no detectable amounts of lead in paint were identified on the structural steel/metal bridge components & concrete abutments/piers, any paint waste generated from those components would be characterized as non-hazardous.

**Site No. 3 – Bridge No. 03178, Route 8 SB over Metro North Railroad, Waterbury, CT**

- Lead paint is presumed present on the painted bridge surfaces of Bridge No. 03178.
- Any painted non-metallic debris and/or paint waste to be generated is presumed as RCRA/CT DEEP hazardous waste.

**Site No. 4 – Bridge No. 03179, Route 8 NB over Metro North Railroad, Waterbury, CT**

- Lead paint is presumed present on the painted bridge surfaces of Bridge No. 03179.
- Any painted non-metallic debris and/or paint waste to be generated is presumed as RCRA/CT DEEP hazardous waste.

The Contractor shall submit a Lead Compliance Work Plan to CTDOT outlining the exact procedures that will be used to perform the work, contain the spread of lead debris and protect the employees performing the required renovation work impacting the lead paint. No work shall be started by the Contractor until the Work Plan is approved by the Engineer.

All work impacting the lead paint materials shall be conducted within an established Regulated Area with a remote wash facility/decontamination system in accordance with “C. Wash Facilities” and the OSHA Lead in Construction Standard. In accordance with 29 CFR 1926.62, engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the Regulated Area and limit the generation of airborne lead. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.

Where abrasive blast cleaning techniques are to be utilized on surfaces coated with lead paint they must be conducted in accordance with the OSHA worker protection and USEPA RCRA/CTDEEP waste disposal standards, and shall be conducted in accordance with Item #0603923A “Abrasive Blast Cleaning and Field Painting of Structure (Site No. X)” following

**SSPC-SP10 “Near White Blast Cleaning” procedures and utilizing a full negative pressure enclosure (NPE) in accordance with SSPC Guide 6 and Item #0603563A.**

**At Site Nos. 3 & 4, The Engineer has characterized the projected paint waste stream associated with the painted bridge surfaces as CTDEEP/RCRA hazardous waste. If the paint is to be removed from the bridge surfaces by abrasive blast cleaning and/or miscellaneous tasks, the paint shall be handled and disposed of in accordance Item #0603222A “Disposal of Lead Debris from Abrasive Blast Cleaning.”**

**Any scrap metal components generated shall be segregated and recycled as scrap metal at the Contractor’s previously submitted scrap metal recycling facility. The recycling of scrap metal (regardless of lead paint concentration) is exempt from USEPA RCRA and CTDEEP Hazardous Waste Regulation.**

Should lead contamination be discovered outside of the Regulated Area, the Contractor shall immediately stop all work in the Regulated Area, eliminate causes of such contamination and take steps to decontaminate non-work areas.

Special Requirements for miscellaneous renovation activities impacting lead (other than abrasive blast cleaning operations):

1. Demolition/Renovation:
  - a. Demolish/renovate in a manner which minimizes the spread of lead contamination and generation of lead dust.
  - b. Implement dust suppression controls, such as misters or local exhaust ventilation, to minimize the generation of airborne lead dust.
  - c. Segregate work areas from non-work areas through the use of barrier tape or drop cloths.
  - d. Clean up immediately after renovation/demolition has been completed.
2. Chemical Removal (if allowed by the Engineer):
  - a. Apply chemical stripper in quantities and for durations specified by manufacturer.
  - b. Where necessary, scrape lead paint from surface down to required level of removal (such as stabilized surface or bare substrate with no trace of residual pigment). Use sanding, hand scraping, and dental picks to supplement chemical methods as necessary.
  - c. Apply neutralizer compatible with substrate and chemical agent to substrate following removal in accordance with manufacturer's instructions.
  - d. Protect adjacent surfaces from damage from chemical removal.

- e. Maintain a portable eyewash station in the work area.
- f. Require that workers wear respirators that protect them from chemical vapors.
- g. Do not apply caustic agents to aluminum surfaces.

3. Mechanical Paint Removal:

- a. Provide sanders, grinders, rotary wire brushes, or needle gun removers equipped with a HEPA filtered vacuum dust collection system. Cowling on the dust collection system for orbital-type tools must be capable of maintaining a continuous tight seal with the surface being abated. Cowling on the dust collection system for reciprocating-type tools shall promote an effective vacuum flow of loosened dust and debris. Inflexible cowlings may be used on flat surfaces only. Flexible contoured cowlings are required for curved or irregular surfaces.
- b. Provide HEPA vacuums that are high performance designed to provide maximum static lift and maximum vacuum system flow at the actual operating vacuum condition with the shroud in use. The HEPA vacuum shall be equipped with a pivoting vacuum head.
- c. Remove lead paint from surface down to required level of removal (i.e. stabilized surface, bare substrate with no trace of residual pigment, etc.). Use chemical methods, hand scraping, and dental picks to supplement abrasive removal methods as necessary.
- d. Protect adjacent surfaces from damage from abrasive removal techniques.
- e. "Sandblasting" or other abrasive blast cleaning type removal techniques shall not be allowed unless in accordance with methods as specified within this Item.

4. Component Removal/Replacement:

- a. Wet down components which are to be removed to reduce the amount of dust generated during the removal process.
- b. Remove components utilizing hand tools, and follow appropriate safety procedures during removal. Remove the components by approved methods which will provide the least disturbance to the substrate material. Do not damage adjacent surfaces.
- c. Clean up immediately after component removals have been completed. Remove any dust located behind the component removed.

H. Prohibited Removal Methods:

The use of heat guns in excess of 700 °Fahrenheit to remove lead paint is prohibited.

The use of sand, steel grit, air, CO<sub>2</sub>, baking soda, water jet, or any other blasting media to remove lead or lead paint without the use of a HEPA ventilated contained negative pressure enclosure is prohibited.

Power/pressure washing shall not be used to remove lead paint, unless explicitly specified for use by the Engineer.

Compressed air shall not be utilized to remove lead paint, unless explicitly specified for use by the Engineer.

Power tool assisted grinding, sanding, cutting, or wire brushing of lead paint without the use of cowed HEPA vacuum dust collection systems is prohibited.

Lead paint burning, busting of rivets painted with lead paint, welding of materials painted with lead paint, and torch cutting of materials painted with lead paint is prohibited. Where cutting, welding, busting, or torch cutting of materials is required, lead paint in the affected area must be removed first.

Chemical stripping of coatings from bridge components is prohibited in areas where Abrasive Blast Cleaning is to be performed, and is generally prohibited in all areas unless specifically allowed by the Engineer.

Chemical strippers containing Methylene Chloride are always prohibited.

#### I. Clean-up and Visual Inspection:

The Contractor shall remove and containerize all lead waste material and visible accumulations of debris, paint chips and associated items.

During clean-up the Contractor shall use rags and sponges wetted with lead-specific detergent and water as well as HEPA filtered vacuum equipment.

The Engineer will conduct a visual inspection of the work area(s) in order to document that all surfaces have been maintained as free as practicable of accumulations of lead in accordance with 29 CFR 1926.62(h). If visible accumulations of waste, debris, lead paint chips or dust are found in the work area, the Contractor shall repeat the cleaning, at the Contractor's expense, until the area is in compliance. The visual inspection will detect incomplete work, damage caused by the abatement activity, and inadequate clean up of the work Site.

During Abrasive Blast Cleaning Operations:

All debris shall be contained and vacuum collected daily or more frequently as directed by the Engineer, due to debris buildup. Such debris, abrasive blast residue, rust and paint chips shall be stored in leakproof storage containers in the secured storage area, or as directed by the Engineer. The storage containers and storage locations shall be reviewed by and be acceptable to the Engineer and shall be located in areas not subject to ponding.

All storage containers (roll offs or drums) shall have a protective liner and removable lid. These containers shall not have any indentations or damage that would allow seepage of the contained material.

If 55 gallon barrels are used, staging is required: 55 gallon barrels shall be stored together in two (2) rows of five (5). The Contractor shall maintain a minimum lane clearance of 36 inches between each (barrel lot of ten (10)).

The Contractor shall maintain a secure storage area, which shall be large enough to handle all debris. The Contractor shall store debris only in the secured storage area. During abrasive blast cleaning operations, all surface preparation debris shall be vacuum collected from the containment enclosure and removed to the abrasive recycling reclaimer unit, and the coating debris shall be conveyed to the secured storage area at the conclusion of the work shift. The Contractor shall account for all coating debris conveyed to the secured storage area and all coating debris transported from the Project for disposal.

The secure storage area shall consist of an eight- (8-) foot high fenced-in area with a padlocked entrance. Storage containers shall not be used on the Project until and unless they have been reviewed and approved by the Engineer. Storage containers and areas shall be located so as not to cause any traffic hazard. Container storage areas shall be in locations that are properly drained, where runoff water shall not be allowed to pool, and shall be out of the 100-year flood plain. The containers shall be placed on pallets or other approved material and not directly on the ground.

Storage containers shall be closed and covered with a waterproof tarpaulin at all times except during placement, sampling and disposal of debris.

#### J. Post-Work Regulated Area Deregulation:

Following an acceptable visual inspection, any engineering controls implemented may be removed.

A final visual inspection of the work area shall be conducted by the Competent Person and the Project Monitor or Engineer to ensure that all visible accumulations of suspect materials have been removed and that no equipment or materials associated with the lead paint removal remain. If this final visual inspection is acceptable, the Contractor will reopen the Regulated Area and remove all associated signs.

The Contractor shall restore all work areas and auxiliary areas used during work to conditions equal to or better than original. Any damage caused during the performance of the work activity shall be repaired by the Contractor at no additional expense to the State.

#### K. Waste Disposal/Recycling:

Metallic debris shall be segregated and recycled as scrap metal at an approved metal recycling facility.

Concrete, brick, etc. coated with any amount of lead paint cannot be crushed, recycled or buried on-site to minimize waste disposal unless tested and found to meet the RSR GA/Residential standards.

All hazardous lead debris shall be disposed of in accordance with Item 0603222A “Disposal of Lead Debris from Abrasive Blast Cleaning.”

L. Project Closeout Data:

Provide the Engineer, within thirty (30) days of completion of the work under this item, a compliance package which shall include the following:

1. Competent person’s (supervisor) job log;
2. Certification that all requirements of the Lead Compliance Work Plan and OSHA Lead in Construction Standards, including training, medical surveillance, biological monitoring and medical removal protection, have been followed;
3. Copies of each periodic inspection report;
4. Report on regulatory compliance prepared by the CIH based on the periodic inspections performed.
5. OSHA-compliant personnel air sampling data;
6. Completed waste shipment papers for non-hazardous lead debris waste disposal or recycling and scrap metal recycling.

M. Non Compliance:

Failure of the Contractor to implement the requirements of 29 CFR 1926.62, its Lead Compliance Work Plan, or any other requirement of this item will, at the sole discretion of the Engineer, result in the suspension of all Contract work until such deficiencies are corrected.

**Method of Measurement:**

This item will include all noted services, equipment, facilities, testing and other associated work, including up to three (3) CTDOT Project representatives. Services provided to any CTDOT Project representatives in excess of three (3) representatives will be measured for payment in accordance with Article 1.09.04 – “Extra and Cost-Plus Work.”

1. Within thirty (30) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for acceptance a breakdown of its lump sum bid price for this item detailing:
  - a. The development costs associated with preparing the Lead Compliance Work Plan in accordance with these Specifications.
  - b. The cost per month for the duration of the Project to implement the Lead Compliance Work Plan and provide the services of the CIH and IH firm.

2. If the lump sum bid price breakdown is unacceptable to the Engineer; substantiation showing that the submitted costs are reasonable shall be required.
3. Upon acceptance of the payment schedule by the Engineer, payments for work performed will be made as follows:
  - a. The lump sum development cost will be certified for payment.
  - b. The Contractor shall demonstrate to the Engineer monthly that the Lead Compliance Work Plan has been kept current and is being implemented and the monthly cost will be certified for payment.
  - c. Any month where the Lead Compliance Work Plan is found not to be current or is not being implemented, the monthly payment for this item will be deferred to the next monthly payment estimate. If the Lead Compliance Work Plan is not current or being implemented for more than thirty (30) calendar days, there will be no monthly payment.
  - d. Failure of the Contractor to implement the Lead Compliance Work Plan in accordance with this Specification will result in the withholding of all Contract payments.

**Basis of Payment:**

The lump sum price bid for this item shall include: services, materials, equipment, all permits, notifications, submittals, personal air sampling, personal protection equipment, incidentals, temporary enclosures, fees and labor incidental to activities impacting lead removal, treatment and handling of lead contaminated materials and the transport and disposal of any non-hazardous, non RCRA lead debris waste and scrap metal.

Final payment will not be made until all Project closeout data submittals have been completed and provided to the Engineer. Once the completed package has been received in its entirety and has been accepted by the Engineer, final payment will be made to the Contractor.

| <u>Pay Item</u>  | <u>Pay Unit</u> |
|--|-----------------|
| Lead Compliance for Abrasive<br>Blast Cleaning & Miscellaneous Tasks | Lump Sum        |

END OF SECTION

## **ITEM #0219011A – SEDIMENT CONTROL SYSTEM AT CATCH BASIN**

**Description:** This work shall consist of furnishing, installing, cleaning, maintaining, replacing, and removing sedimentation control at catch basins at the locations and as shown on plans and as directed by the engineer.

### **Materials**

Sack shall be manufactured from a specially designed woven polypropylene geotextile sewn by a double needle machine, using a high strength nylon thread. Sack shall be manufactured by one of the following or an approved equal:

Dandy Sack™ Dandy Products Inc.  
P.O. Box 1980  
Westerville, Ohio 43086  
Phone: 800-591-2284  
Fax: 740-881-2791  
Email: dlc@dandyproducts.com  
Website: <http://www.dandyproducts.com/>

FLeXstorm Inlet Filters Inlet & Pipe Protection  
24137 W. 111th St - Unit A Naperville, IL 60564  
Telephone: (866) 287-8655  
Fax: (630) 355-3477  
<https://www.inletfilters.com/>

The sack will be manufactured to fit the opening of the catch basin or drop inlet. Sack will have the following features: two dump straps attached at the bottom to facilitate the emptying of sack and lifting loops as an integral part of the system to be used to lift sack from the basin. The sack shall have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this cord is also a visual means of indicating when the sack should be emptied. Once the strap is covered with sediment, the sack should be emptied, cleaned and placed back into the basin.

### **Construction Methods:**

Installation, removal, and maintenance shall be per manufacturer instructions and recommendations.

**Method of Measurement:** Sedimentation Control at Catch Basin will be measured as each installed, maintained, accepted, and removed. There will be no separate measurement for maintenance or replacement associated with this item.

**Basis of Payment:**

Sedimentation Control at Catch Basin will be paid for at the contract unit price each complete in place and accepted, which price shall include all maintenance throughout construction, materials, equipment, tools, and labor incidental thereto.

**Pay Item**

Sediment Control System at Catch Basin

**Pay Unit**

EA

## **ITEM #0406002A – TEMPORARY PAVEMENT**

**Description:** Work under this item shall consist of placing temporary pavement at the locations and to the general requirements shown on the Plans or as directed by the Engineer.

**Materials:** The materials to be used in the construction of temporary pavement shall be those indicated on the plans and in the details or ordered by the Engineer. Processed Aggregate Base shall meet the requirements of CONNDOT Form 818 Article M.05.01. Bituminous Concrete shall meet the requirements of Section M.04 of the type and thickness specified.

### **Construction Methods:**

A. The methods employed in placing the bituminous pavement and all equipment, tools, machinery and other plant equipment used in handling materials and executing any part of the work shall meet all requirements of Section 4.06. The completed and compacted temporary pavement shall match the adjacent grade of the existing pavement and meet or surpass the uniformity of the adjacent surface and its roughness or riding quality. Replacement of the temporary pavement will be required at no additional cost where the pavement surface is not smooth or the compacted thickness of the bituminous concrete is deficient by more than ½”.

B. It shall be the responsibility of the Contractor to maintain and repair temporary bituminous pavement surfaces until such time as the temporary pavements have been replaced with the construction of permanent pavements. The Contractor shall at all times maintain the temporary pavements in a safe and satisfactory condition and all maintenance and repairs of permanent and temporary pavements shall be provided by the Contractor at no additional expense.

C. The Contractor shall perform and complete the construction work in a continuous manner and so that pavement replacement work may proceed without delay. The Contractor shall install the temporary pavement as soon as practical. Unless otherwise directed by the Engineer the Contractor shall install the temporary pavement daily.

D. All curbing, street fixtures and such other appurtenant work damaged or displaced as a result of the Contractor's operations shall be repaired or replaced and restored by the Contractor in a manner satisfactory to the Engineer at no cost.

E. Payment for temporary pavement shall be made only to the limits as shown on the contract drawings or as directed by the Engineer.

**Method of Measurement:** This work will be measured for payment by the square yards of temporary pavement surface to the limits shown on the plans or ordered by the Engineer and after verification of the proper depth of bituminous concrete pavement thickness by the Engineer.

**Basis of Payment:** The temporary pavement will be paid for at the contract unit price per square yard for "Temporary Pavement" complete in place and approved which price shall include all materials, tools, equipment and labor incidental thereto. No separate payments will be made for furnishing, placing, and compaction, removal and disposal of temporary pavement or the cleaning, saw cutting, and tack coating of the existing pavement. The costs for these items shall be included in the contract unit price.

| <b>Pay Item</b>    | <b>Pay Unit</b> |
|--------------------|-----------------|
| Temporary Pavement | S.Y.            |

## **ITEM #0406194A – JOINT AND CRACK SEALING OF BITUMINOUS CONCRETE PAVEMENT**

**Description:** This work consists of furnishing and applying hot-applied rubberized asphalt crack sealer to bituminous concrete pavement joints and cracks. It shall be constructed in close conformity with the lines, grades, thicknesses, and typical cross sections shown on the plans or established by the Engineer. Joint and Crack Sealing of Bituminous Concrete Pavement may be used in conjunction with other repair treatments including joint and crack filling or patching, in which case the sequence of treatments will be provided in the Plans or directed by the Engineer.

For the purposes of this document, the word “crack” includes all longitudinal (along the direction of travel) and transverse (perpendicular to the direction of travel) cracks and joints. All work specified for “crack(s)” herein shall apply to all types of cracks and joints unless otherwise specified.

### **Materials:**

1. Crack Seal: The crack seal material shall be composed of a hot-applied, rubberized asphalt meeting AASHTO M 324 Type II requirements. The crack seal material will also contain a minimum of 10% crumb rubber by weight. The Contractor must submit to the Engineer all Material Safety Data Sheet documents from the material manufacturer prior to the commencement of work. During work progress, the Contractor must submit to the Engineer the manufacturer’s Material Certificate for compliance to AASHTO M 324 Type II requirements for each batch or lot of material utilized on the Contract.
2. Optional Barrier Material – Backer Rod: The backer rod shall be a heat resistant material compatible with the crack sealant and acceptable to the manufacturer of the sealant. No bond or reaction shall occur between the sealant and the rod. It shall be of a non-water absorbent material and shall not melt or shrink when hot sealant is poured on it.

The backer rod shall have a maximum of 5% absorption when immersed in water for 24 hours with the ends sealed. The backer rod shall be of such a size that compression is required for installation in the crack, so that it maintains its position during the sealing operation. Backer rod shall be dry.

3. Optional Barrier Material – Hot Mix Asphalt (HMA): Any HMA placed in the bottom of a crack between 1.5 and 2 inches wide shall be HMA S0.25 Traffic Level 2 and shall meet all requirements of Section 4.06 - Bituminous Concrete.

The Contractor must submit to the Engineer all Material Safety Data Sheet documents from the material manufacturer(s) prior to the commencement of work. During work progress, the Contractor must submit to the Engineer the manufacturer’s Material Certificate for compliance to applicable specifications for each batch or lot of material utilized on the Contract.

**Construction Methods:** The crack sealing operation shall proceed in accordance with the requirements of the “Maintenance and Protection of Traffic” and “Prosecution and Progress” specifications.

1. Equipment: The equipment used by the Contractor shall include, the following:
  - a. **Melter Applicator:** The unit shall consist of a boiler kettle equipped with pressure pump, hose, and applicator wand; the boiler kettle may be a combination melter and pressurized applicator of a double-boiler type with space between the inner and outer shells filled with heat transfer oil. Heat transfer oil shall have a flash point of not less than 600°F. The kettle shall include a temperature control indicator. The kettle shall be capable of maintaining the crack seal material at the manufacturer’s specified application temperature range. The kettle shall include an insulated applicator hose and application wand. The hose shall be equipped with a shutoff control. The kettle shall include a mechanical full sweep agitator to provide continuous blending. The unit shall be equipped with thermometers to monitor the material temperature and the heating oil temperature. The unit shall be equipped with thermostatic controls that allow the operator to regulate material temperature up to at least 425°F.
  - b. **Application Wand and Squeegee Applicator:** The material shall be applied with a wand followed by a squeegee applicator. The squeegee applicator shall be of commercial/industrial quality designed with a “U” shaped configuration. It shall be of a size adequate to strike off, flush with the surrounding pavement surface and without overflow around the sides, all crack seal material placed. This tool shall be either attached to the applicator wand or used separately as its own long handled tool.
  - c. **Hot Air Lance:** The unit shall be designed for cleaning and drying the pavement surface cracks. Minimum compressed air capacity shall be 100 psi. The compressed air emitted from the tip of the lance shall be capable of achieving a temperature of at least 1500°F.
  - d. **Vertically Mounted Power Driven Wire Brush:** This tool shall be used to remove any dirt, debris, or vegetation to the depths specified that cannot be removed by the hot air lance. It shall be of adequate size and power to remove all material from cracks as specified.
2. Weather Requirements: Work shall not be performed unless the pavement is dry. No frost, snow, ice, or standing water may be present on the roadway surface or within the cracks. The ambient temperature must be 40°F and rising during the field application operations for work to proceed.
3. Material Mixing Procedure: The prepackaged material shall be added to the melter applicator in the presence of the Engineer. It shall then be mixed and heated to the recommended application temperature. The crack seal material shall never exceed 400°F.

4. Determination of Cracks to be Sealed: The width and depth requirements for cracks to be sealed are as follows:

All crack width determinations shall be made by measuring the crack width flush at the surface of the pavement prior to being sealed. A straightedge shall be used whenever necessary to establish the location or limits of the flush surface of the pavement.

All cracks from  $\frac{1}{8}$  inch up to 1.5 inches wide shall be prepared and sealed as stated below. Cracks that are between  $\frac{1}{8}$  inch and 1.5 inches wide, but eventually taper in width below the minimum  $\frac{1}{8}$  inch, shall also be prepared and sealed as stated below. Only cracks that are less than  $\frac{1}{8}$  inch wide throughout their entire length shall be excluded.

Transverse cracks, where a portion of the crack (50% or less) exceeds a width of 1.5 inches, up to 2 inches, shall also be prepared and sealed as stated below.

All joints to be sealed that are raveled (loss of the pavement surface material) shall be at least  $\frac{1}{2}$  inch in depth at the joint's deepest point. The minimum width of a raveled joint must be  $\frac{1}{2}$  inch. The maximum width of a raveled joint to be sealed is 3 inches.

Any cracks exceeding the width and depth requirements specified above shall be repaired using separate items.

5. Crack Preparation: Cracks to be sealed shall be treated with a hot air lance prior to application of the crack seal material. Two (2) passes minimum shall be made with the hot air lance. The hot air lance operation shall proceed at a rate no greater than 120 feet per minute. There shall be no more than 10 minutes between the second hot air lance treatment and the material application.

The use of the hot air lance is not intended to heat the crack. It is to be used to blow all debris from the crack to the depths specified below and to remove any latent moisture from the crack until the inside of the crack is completely dry as determined by the Engineer. "Moisture" does not include standing water. The hot air lance is not to be used to boil off or blow standing water from the bottom of a crack. If standing water is present in the bottom of any crack, the sealing operation shall be postponed until such time that the standing water evaporates naturally. The Contractor may use compressed, oil-free air (not heated) to blow standing water from a crack to help accelerate the natural evaporation process. If standing water remains after using compressed air, the crack shall be allowed to dry naturally until remaining standing water evaporates. The hot air lance shall be used after visible water has evaporated. If a crack is already completely dry as determined by the Engineer, the hot air lance shall be operated at its lowest temperature possible.

The hot air lance is to be used to blow all debris from cracks (not including raveled joints) to a depth of at least  $\frac{3}{4}$  inch for cracks between  $\frac{1}{8}$  inch and  $\frac{3}{4}$  inch wide, and to a depth of 1.25 inches for cracks between  $\frac{3}{4}$  inch and 2 inches wide. The hot air lance shall be used to blow

all debris from raveled joints to a depth of 1 inch or the full depth of the joint, whichever is smaller.

In the event that cracks are packed tightly with debris, dirt, vegetation, or other material, except previously placed sealant or filler, the Contractor shall use a vertically mounted power driven wire brush to remove all material and burnish the sides of the crack to the depths specified above. Cracks treated with the power driven wire brush shall subsequently be treated with a hot air lance as described in this section. The use of both the power driven wire brush and the hot air lance shall result in the complete removal of all material in the crack (except previously placed sealant or filler) to the depths specified above such that the sides of the crack are completely free and clean of any debris and moisture.

In the event that cracks have depths greater than 2 inches below the pavement surface, the Contractor may place a barrier composed of backer rod as specified herein. The backer rod shall be placed in a manner leaving 1.25 inches below the elevation of the pavement surface for crack seal material. Use of backer rod will not be allowed for cracks wider than 1.5 inches or less than ½ inch wide. For cracks between 1.5 and 2 inches wide, HMA S0.25 Traffic Level 2 may be placed in the bottom of the prepared crack. HMA shall be placed and compacted with a steel T-bar approved by the Engineer in a manner leaving 1.25 inches below the elevation of the pavement surface for crack seal material.

6. Crack Sealing: As soon as cracks have been prepared, they shall be filled to refusal along their entire length with the crack sealant material. The treatment material shall be maintained at the manufacturer's specified/recommended application temperature range at all times. The sealing operation shall be suspended if the temperature of the crack seal material falls outside the specified temperature range and shall remain suspended until the crack seal material is brought within the specified temperature range. Sealed cracks are to be squeegeed immediately following application of the crack seal material, striking excess sealer flat to the adjacent pavement surface. There shall be no build-up of treatment material above or adjacent to the crack at any time. If the initial application of crack sealant material fails to fill the crack or shrinks upon cooling such that there is a depression formed of at least ¼ inch or greater, a second application of sealant shall be placed over the first application.
7. Protection of Sealed Cracks: Traffic shall not be permitted on the pavement until the crack seal material is set so that the material does not track and is not deformed or pulled out by tires. If the work under this item is being performed prior to placing a hot mix overlay or other surface treatment, a detackifier or blotting agent will not be allowed. If work under this item is not followed by placement of an overlay of any kind, a detackifier or blotting agent may be used. If a detackifier or blotting agent is used, it shall be one recommended by the supplier of the crack seal material and shall be used as recommended by the supplier, except that no paper, cotton, or other organic materials shall be allowed. Information on the type and usage of a detackifier or blotting agent shall be presented to the Engineer for their written acceptance prior to use.

8. Removal and Disposal of Material: All debris generated from the operations described above shall be removed from the roadway by the Contractor.

Treatment material remaining in the Contractor's kettle at the close of the daily work session shall be discarded. At no time shall treatment material be re-heated for use in subsequent crack sealing applications unless permitted by the Engineer following a review of specific circumstances.

All debris and surplus treatment material shall be properly disposed in accordance with Article 1.10.03 and State of Connecticut law.

9. Acceptance of Work: When work is complete, an inspection shall be scheduled with the Engineer. The Engineer will note all deficiencies including, areas exhibiting adhesion failure, cohesion failure, tracking of sealant material, and missed cracks. Work identified by the Engineer as not acceptable shall be repaired at the Contractor's expense. The Contractor shall notify the Engineer upon completion of any corrective work performed.

**Method of Measurement:** This work will be measured by the total number of linear feet of cracks sealed as indicated in the Contract plans and as measured, verified, and accepted by the Engineer.

**Basis of Payment:** This work will be paid for at the Contract unit price per linear foot for "Joint and Crack Sealing of Bituminous Concrete Pavement" complete and accepted in place. The price shall include all submittals, materials, equipment, tools, and labor incidental thereto. No payment will be made to the Contractor prior to submittal of required documents.

| Pay Item  | Pay Unit |
|---|----------|
| Joint and Crack Sealing of Bituminous Concrete Pavement | l.f.     |

## **ITEM #0406287A – RUMBLE STRIPS - AUTOMATED**

### **Description:**

Work under this item shall consist of installing rumble strips on asphalt highway shoulders where shown on the plans or where directed by the Engineer, and in conformance with these specifications.

### **Construction Methods:**

The Contractor shall pre-mark the location of the edge of the cut, and the beginning and ending points of the sections, prior to the installation of the rumble strips. The Engineer shall review and approve the locations.

The Contractor shall arrange for a technical representative, from the company which produces the milling machine to be used on the project, who will be required to be on-site from the beginning of the operation in order to ensure results that meet the requirements of the plans and specifications until such time the Engineer is satisfied.

Rumble strips should not be installed on bridge decks, in acceleration and deceleration lanes, at drainage structures, at loop detector sawcut locations, or in other areas identified by the Engineer.

### **Automated (Wide Shoulders):**

The equipment shall be able to install the rumble strips in sections where the shoulder width from the edge line to an obstruction is greater than or equal to 4 feet. Where there are no obstructions, the equipment shall be used in sections where the shoulder width from the edge line is a minimum of 3 feet. The equipment shall consist of a rotary type cutting head with a maximum outside diameter of 24" and shall be a minimum of 16" long. The cutting head(s) shall have the cutting tips arranged in such a pattern as to provide a relatively smooth cut (approximately 1/16 of an inch between peaks and valleys) in one pass. The cutting head shall be on its own independent suspension from that of the power unit to allow the tool to self align with the slope of the shoulder or any irregularities in the shoulder surface. The equipment shall include suitable provisions for the application of water to prevent dusting. The Contractor shall use a machine capable of creating the finished pattern at a minimum output of 60 rumble strips per minute.

### **Finished Cut Automated**

The rumble strips shall have finished dimensions of 7" (+/- 1/2") wide in the direction of travel and shall be a 16" (+/- 1/2") long measured perpendicular to the direction of travel. The depressions shall have a concave circular shape with a minimum 1/2" depth at center (maximum allowable depth is 5/8" measured to a valley). The rumble strips shall be placed in relation to the roadway according to the patterns shown in the plans or on the Rumble Strip Details. Alignment of the edge of the cut shall be checked and verified by the Engineer.

The cutting tool shall be equipped with guides to provide consistent alignment of each cut in relation to the roadway.

The Contractor shall pick up any waste material resulting from the operation in a manner acceptable to the Engineer. This waste material shall be disposed of in accordance with Subarticle 2.02.03-10(a).

The work area shall be returned to a debris-free state prior to re-opening to traffic.

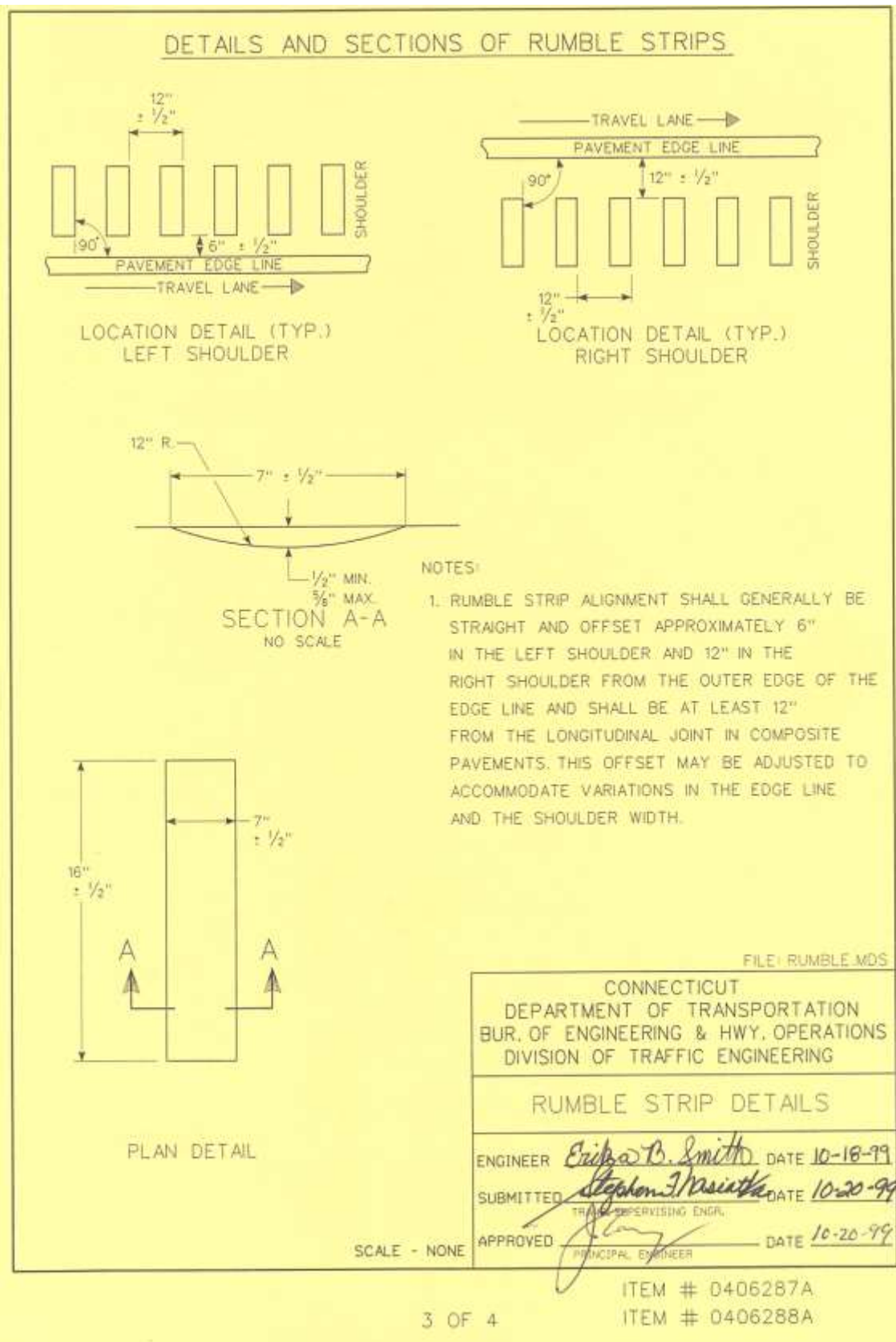
The Contractor shall provide all traffic control according to the Maintenance and Protection of Traffic Specification included elsewhere in the contract.

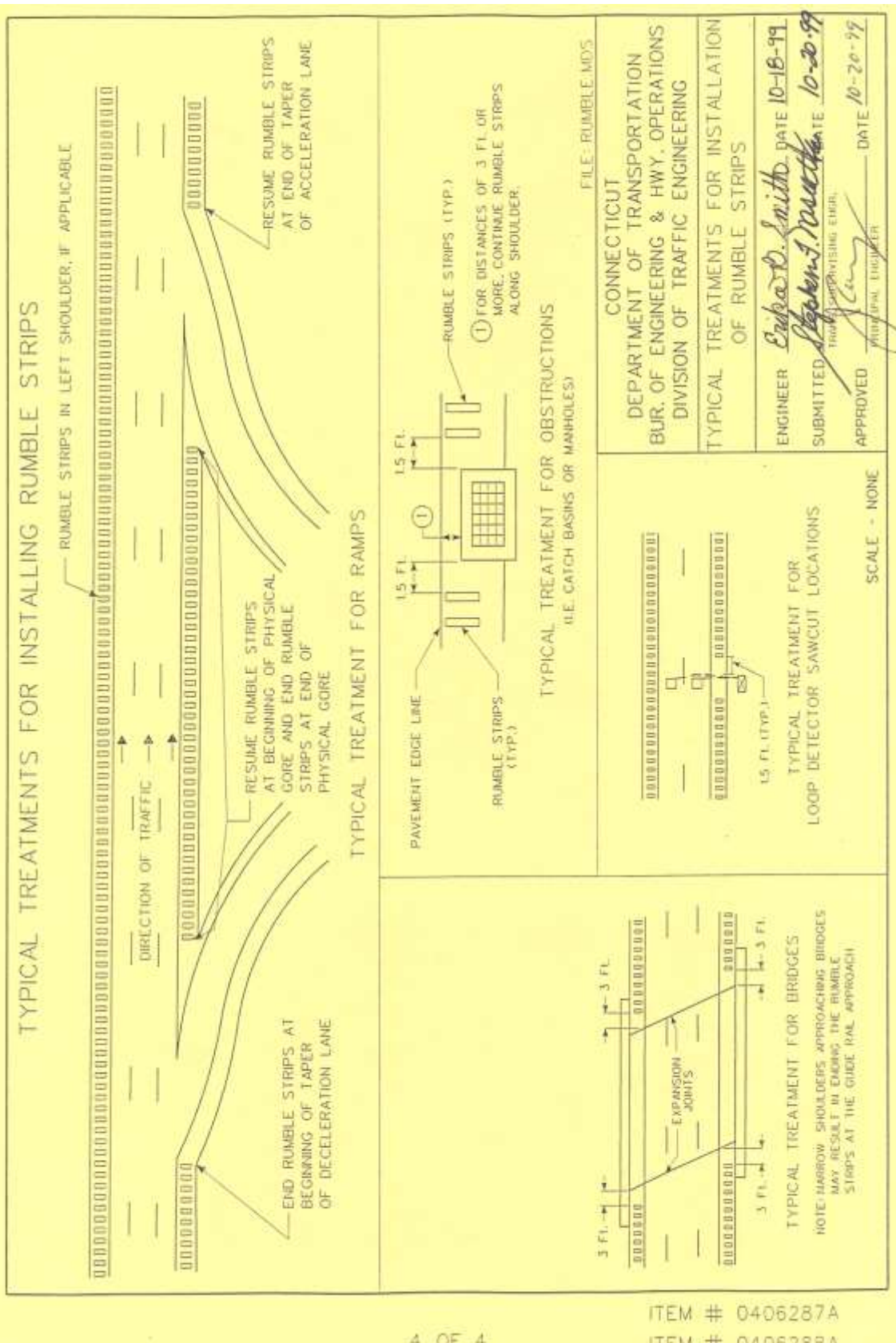
**Method of Measurement:**

This work will be measured for payment by the actual number of feet of shoulder where the rumble strips are placed and accepted. This distance shall be measured longitudinally along the edge of pavement with deductions for bridge decks, acceleration and deceleration lanes, drainage structures, loop detector sawcut locations, and other sections where the rumble strips were not installed.

**Basis of Payment:**

This work will be paid for at the Contract unit price per foot for "Rumble Strips - Automated". The price shall include furnishing all equipment, tools, labor, a technical representative and work incidental thereto and also disposal of any waste material resulting from the operation.





## **ITEM #0406289A – REMOVAL OF RUMBLE STRIPS**

### **Description:**

Work under this item shall consist of removing rumble strips through milling and repaving with hot mix asphalt (HMA) where shown on the plans or where directed by the Engineer, and in conformance with these specifications. The surface lift of the existing pavement shall be removed by milling out the existing rumble strip to a depth of 1.5 to 2.5 inches. The milled surface shall be swept by hand or machine and then be blown clean with compressed air or a hot air lance. Tack coat is to be applied to the milled surface and any vertical or semi-vertical walls formed by the milling. The milled out area shall then be filled and compacted with HMA S0.375.

### **Definitions:**

Surface lift of pavement: The thickness of the last lift of pavement placed prior to performing crack sealing. A lift is defined as single bituminous-concrete mixture placed at a defined thickness in a single paver pass (or by handwork.)

### **Materials:**

Materials for this work shall consist of the following:

Hot-mix Asphalt (specifically HMA S0.375) conforming to the requirements of Sections 4.06 and M.04 of the Standard Specifications.

Tack coat conforming to the material requirements for tack coat in Sections 4.06 and M.04 of the Standard Specifications.

### **Equipment:**

Equipment for this work shall include, but is not limited to, the following:

Milling machine – A milling machine designed and built for milling HMA pavements. It shall be self propelled with sufficient power, traction, and stability to maintain depth.

The rotary drum of the machine shall utilize carbide tip tools spaced not more than 5/8 inches apart. Use of a fine-milling drum with a tighter tooth spacing of 0.3 inches is desirable, but optional. The forward speed of the milling machine shall be limited to no more than 45 feet/minute. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture. It must include dust control equipment during the removal process.

It shall be capable of removing the existing pavement to a width of 2 to 10 inches wider than the rumble strip.

A wider milling width may be used in cases where two rumble strips are located near and parallel to each other, as may occur in a median area; see Construction Methods.

Sweeper – A hand broom is acceptable for smaller areas when approved by the Engineer. If a mechanized sweeper is used, it shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. Other sweeping or vacuum type equipment may be provided in lieu of the sweeper where acceptable by the Engineer.

Air compressor – The unit shall consist of an air compressor capable of producing 100 psi, oil free, compressed air for blowing the milled pavement surface clean.

Hot air lance – The unit shall be designed for cleaning and drying the pavement surface. It shall consist of an air compressor capable of delivering 100 psi, oil free heated air. The compressed air emitted from the tip of the lance shall be flame free and be capable of achieving a temperature of at least 1500°F.

Paving and compaction equipment – All equipment used to place and compact the hot mix asphalt required for this work shall meet the requirements of Section 4.06 of the Standard Specifications, except no grade and slope control shall be required. Also, due to the nature of this work, it is expected that much of the placement of hot mix asphalt will require hand work. Either vibratory plate compactors or rollers may be used for compaction.

### **Construction Methods:**

The Contractor shall pre-mark the location of the beginning and ending points of the sections, prior to the removal of the rumble strips. The Engineer shall review and approve the limits of removal.

The width of milling shall be as specified on the Plans or other specifications. If no other width specification exists, the width of milling shall be 2 to 10 inches wider than the existing rumble strip. Rumble strips are typically about 16 inches wide. If there are two rumble strips located near and parallel to one another, as may occur in median areas, and if they both can be removed by a single pass of a wider milling machine without adversely affecting drainage, safety, or quality of results, then a wider milling machine may be used. In this case the length measured for pay will be the sum of the lengths of the two individual rumble strips. Milling widths wider than specified above may be used with the written permission of the Engineer.

The depth of removal shall be as shown on the Plans, or as detailed in specifications, or as directed by the Engineer, generally from 1.5 to 2.5 inches. The intent is to remove the surface lift. If there are no Plans or other specifications, mill 1.5 to 2.5 inches as needed to match the thickness of the surface lift. The Engineer may alter the milling depth based on conditions discovered as work is in progress. It is expected that the milling depth will not exceed 2.5 inches. If the surface lift is 3 inches thick and it is in good condition, as determined by the Engineer, mill only 1.5 inches deep, unless directed otherwise by the Plans, project specifications, or Engineer.

As specified in the requirements for milling, the milled surface shall be swept clean (by hand if necessary.) Once all millings are removed by sweeping, the milled areas shall be allowed to dry if necessary. Any moisture in or on the milled areas must be allowed to evaporate or be removed with the assistance of a hot air lance as specified above. Once the milled area is deemed dry by the

Engineer it shall be blown with compressed or hot lance air, as specified above, so that no debris or dust is present on or within the milled area.

Once deemed clean by the Engineer, the milled area, including the sides/walls of the milled area, shall receive an application of tack coat as specified above and in Section 4.06 of the Standard Specifications.

After the tack coat has had sufficient time to cure or break, HMA S0.375 (Superpave Level 2) shall be placed and compacted to the requirements above and in Section 4.06 of the Standard Specification. It shall be compacted to match the elevation of the surrounding pavement surface.

At all times the Contractor is required to meet the density and compaction and all other requirements specified in Sections 4.06 and M.04 of the Standard Specifications and any supplementals that have been issued by the bid date of the project.

The Contractor shall resurface the milled area prior to opening the roadway to traffic. The milled area shall be swept, cleaned with compressed air, tacked and repaved in the same day.

Precaution should be taken to avoid damage to the existing roadway materials that are to remain in place. If damage occurs, it must be repaired by the Contractor at no additional cost to the State. The methods employed in performing the work and all equipment, tools, machinery and plant used in handling material and executing any part of the work shall be subject to the approval of the Engineer before the work is started; and whenever found unsatisfactory, it shall be changed and improved as required by the Engineer.

The Contractor shall pick up any waste material resulting from the operation in a manner acceptable to the Engineer. This waste material shall be disposed of in accordance with Subarticle 2.02.03-10(a).

**Method of Measurement:**

This work will be measured for payment by the actual number of linear feet of rumble strips removed. This distance shall be measured longitudinally along the edge of pavement with deductions for bridge decks, acceleration and deceleration lanes, drainage structures, loop detector sawcut locations, and other sections where the rumble strips were not previously installed. If two rumble strips are near one another and are removed by a single milling machine pass, the length measured for pay will be the sum of the lengths of the two rumble strips.

**Basis of Payment:**

This work will be paid for at the Contract unit price per linear foot for "Removal of Rumble Strips." The price shall include the removal of the existing rumble strips, furnishing all materials, placement, and compaction of the HMA, equipment, tools, labor, and work incidental thereto and also disposal of any waste material resulting from the operation.

**Pay item**

Removal of Rumble Strips

**Pay Unit**

L.F.

## **ITEM #0406999A – ASPHALT ADJUSTMENT COST**

**Description:** The Asphalt Adjustment Cost will be based on the variance in price for the performance-graded binder component of hot mix asphalt (HMA), Polymer Modified Asphalt (PMA), and Ultra-Thin Bonded Hot-Mix Asphalt mixtures completed and accepted during the Contract.

**The Asphalt Price is available on the Department of Transportation website at:**

<http://www.ct.gov/dot/asphaltadjustment>

### **Construction Methods:**

An asphalt adjustment will be applied only if all of the following conditions are met:

- I. For HMA and PMA mixtures:
  - a. The HMA or PMA mixture for which the adjustment would be applied is listed as a Contract item with a pay unit of tons.
  - b. *The total quantity for all HMA and PMA mixtures in the Contract or individual purchase order (Department of Administrative Service contract awards) exceeds 1000 tons or the Project duration is greater than 6 months.*
  - c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.
- II. For Ultra-Thin Bonded HMA mixtures:
  - a. The Ultra-Thin Bonded HMA mixture for which the adjustment would be applied is listed as a Contract item.
  - b. The total quantity for Ultra-Thin Bonded HMA mixture in the Contract exceeds:
    - i. 800 tons if the Ultra-Thin Bonded HMA item has a pay unit of tons.
    - ii. 30,000 square yards if the Ultra-Thin Bonded HMA item has a pay unit of square yards.

Note: The quantity of Ultra-Thin Bonded HMA measured in tons shall be determined from the material documentation requirements set forth in the Ultra-Thin Bonded HMA item Special Provision.
  - c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.
  - d. No Asphalt Adjustment Cost will be applied to the liquid emulsion that is specified as part of the Ultra-Thin Bonded HMA mixture system.
- III. Regardless of the binder used in all HMA or PMA mixtures, the Asphalt Adjustment Cost will be based on PG 64-22.

The Connecticut Department of Transportation (CTDOT) will post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the **Asphalt Weekly Monitor®** furnished by Poten & Partners, Inc. under the “East Coast Market – New England, New Haven, Connecticut area,” F.O.B. manufacturer’s terminal.

The selling price furnished from the Asphalt Weekly Monitor ® is based on United States dollars per standard ton (US\$/ST).

**Method of Measurement:**

Formula:  $\text{HMA} \times [\text{PG}\% / 100] \times [(\text{Period Price} - \text{Base Price})] = \$ \text{_____}$

where

- **HMA:**
  1. For HMA, PMA, and Ultra-Thin Bonded HMA mixtures with pay units of tons:  
The quantity in tons of accepted HMA, PMA, or Ultra-Thin Bonded HMA mixture measured and accepted for payment.
  2. For Ultra-Thin Bonded HMA mixtures with pay units of square yards:  
The quantity of Ultra-Thin Bonded HMA mixture delivered, placed, and accepted for payment, calculated in tons as documented according to the Material Documentation provision (Construction Methods, paragraph G) of the Ultra-Thin Bonded HMA Special Provision.
- **Asphalt Base Price:** The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
- **Asphalt Period Price:** The asphalt price posted on the CTDOT website during the period the HMA or PMA mixture was placed.
- **PG%:** Performance-Graded Binder percentage
  1. For HMA or PMA mixes:
    - $\text{PG}\% = 4.5$  for HMA S1 and PMA S1
    - $\text{PG}\% = 5.0$  for HMA S0.5 and PMA S0.5
    - $\text{PG}\% = 6.0$  for HMA S0.375, PMA S0.375, HMA S0.25 and PMA S0.25
  2. For Ultra-Thin Bonded HMA mixes:  
 $\text{PG}\% = \text{Design \% PGB}$  (Performance Graded Binder) in the approved job mix formula, expressed as a percentage to the tenth place (e.g. 5.1%)

The asphalt adjustment cost shall not be considered as a changed condition in the Contract as result of this provision since all bidders are notified before submission of bids.

**Basis of Payment:** The "Asphalt Adjustment Cost" will be calculated using the formula indicated above. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this item will be considered the bid price although the adjustment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded, and the original cost figure will be used to determine the amount of the bid for the Contract.

**Pay Item**  
Asphalt Adjustment Cost

**Pay Unit**  
est.

## **ITEM #0503030A – REMOVAL OF BRIDGE DECK CONCRETE**

Work under this item shall meet the requirements of Section 5.03 of the Standard Specifications Form 818 amended as follows:

### **5.03.01 - Description:** *Replace the article with the following:*

This work shall consist of the removal and satisfactory disposal of existing bridge deck, parapet concrete, granite curbing, steel finger joint components, abutment backwall and wingwall parapet concrete at deck ends and pin and hanger locations within limits as shown on the plans.

For Site Nos. 1 and 2, work under this item shall also include the installation and maintenance of a debris shield under the existing bridge deck to be removed.

For Site Nos. 3 and 4, the installation and maintenance of a debris shield shall be included under the item “Temporary Work Platform”.

### **5.03.02 - Materials:** *Add the following:*

Zinc rich primer shall meet the requirements of ASTM A780

### **5.03.03 - Construction Methods:** *Supplement with the following:*

All work shall proceed as directed by and to the satisfaction of the Engineer and in accordance with the construction staging and details shown on the plans and the requirements of Special Provision Items #0971001A, “Maintenance and Protection of Traffic” and Section 1.08, “Prosecution and Progress”.

Upon the completion of the removal of the HMA wearing surface and prior to the removal of the concrete deck, the contractor shall record existing top of concrete elevations taken along the center line of each steel girder at the bearing locations.

The concrete shall be saw cut to delineate the removal limits. The Contractor is notified that the existing reinforcing bars are to remain and that the Contractor shall exercise caution when removing the concrete. Pneumatic hammers or any other method approved by the Engineer may be used to remove the concrete. Maximum 15.5 lbs hammers shall be used near reinforcing steel that is to remain. Pneumatic tools shall not be placed in direct contact with the reinforcing steel that is to remain. The removal shall not result in damage to any permanent construction (new or existing) or to adjoining property below. If damage does occur, it shall be repaired by the Contractor to the satisfaction of the Engineer at no additional expense to the State.

Existing steel finger joint components required to be cut and remain in place shall be primed with a zinc-rich primer.

The Contractor shall prepare and submit to the Engineer for review in accordance with Article 1.05.02 Working Drawings, computations and written procedures for the removal of the bridge deck concrete as well as for the design and installation of the debris shield. Acceptance of the Contractor's plans shall not be considered as relieving the Contractor of any responsibility.

**5.03.03 – Method of Measurement** *Replace the entire Article with the following:*

Concrete bridge deck, backwall, bridge and wingwall parapet, safety walk and granite curbing removed under this item shall be measured for payment by the volume in cubic yards measured in place prior to removal.

Removal of existing steel finger joint components shall not be measured for payment.

**5.03.05 - Basis of Payment:** *Replace the entire Article with the following:*

This work shall be paid for at the Contract price per cubic yard for "Removal of Bridge Deck Concrete", which price shall include all work incidental to the removal and satisfactory disposal of concrete in the bridge deck, bridge and wingwall parapets, granite curbs, abutment backwalls and all materials, equipment, tools, labor, incidental thereto. It shall also include the satisfactory removal and disposal of finger joint components identified for removal and coating of components that are to remain.

**Pay Item**

Removal of Bridge Deck Concrete

**Pay Unit**

C.Y.

**ITEM #0503042.03A – REMOVAL OF BRIDGE DRAINAGE SYSTEM (SITE NO. 3)**

**ITEM #0503042.04A – REMOVAL OF BRIDGE DRAINAGE SYSTEM (SITE NO. 4)**

**Description:** Work under this item shall consist of removing and properly disposing of existing metal pipes attached to the existing bridge finger joint drainage system where indicated on the plans or as ordered by the Engineer.

**Construction Methods:** The Contractor shall take appropriate care not to damage the drainage downspout and attachments during the removal of the metal pipe. Any damage incurred to the existing downspout and attachments during the removal of the metal pipe shall be repaired or replaced by the Contractor at no cost to the State.

Controlled material adhered to the metal pipe shall be removed, handled, decontaminated, solidified, stored, loaded, transported and disposed of in accordance with their respective contract items.

**Method of Measurement:** Removal of Bridge Drainage System will be paid for on a lump sum basis and will not be measured for payment.

**Basis of Payment:** This item will be paid for at the Contract lump sum price for “Removal of Bridge Drainage System (Site No. X)” complete and in place, which price shall include the removal and disposal of the pipe, all materials, tools, equipment, and labor incidental thereto.

The cost of removal, special handling, decontamination, material solidification, dewatering, storage, loading, transportation and disposal of controlled material will be paid in accordance with their respective contract items.

| <b>Pay Item</b>                                | <b>Pay Unit</b> |
|--|-----------------|
| Removal of Bridge Drainage System (Site No. 3) | L.S.            |
| Removal of Bridge Drainage System (Site No. 4) | L.S.            |

**ITEM #0503887A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 1)**

**ITEM #0503888A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 2)**

**ITEM #0503884A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 3)**

**ITEM #0503885A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 4)**

**Description:**

Work under this item shall consist of designing, furnishing, installing, maintaining and removing temporary jacking systems (falsework bents or devices) that can raise the existing superstructure members the minimum amount necessary to permit work on the replacement of existing expansion bearings, hinge plates and pins (Site No. 1 & 2) and expansion and fixed pin and hanger assemblies (Site No. 3 & 4)

Work under this item shall also consist of loosening U-bolts that support existing utilities at Sites No. 3 and 4 during the jacking operations and coordinating this activity with the Engineer.

Where called for in the Plans, or if required by the Contractor's design, work under this item shall also include the installation of stiffeners onto the webs of existing girders or components thereof to prevent buckling of said members during jacking operations. Cleaning and painting or repairs to existing structural steel will occur under the items “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)”, “Localized Paint Removal and Field Painting of Existing Steel” and “Structural Steel Repairs (Site No. X)”.

Jacking the girders shall be done simultaneously along the same bearing line for installing and removing the temporary support system and installing the proposed bearings.

**Materials:**

Steel, timber or any other material or combination of materials may be used for the temporary jacking and supporting of the girders.

The materials used shall be of satisfactory quality, and capable of safely carrying the anticipated loads. All materials shall be approved by the Engineer before use.

Steel bearing stiffeners shall meet ASTM A36 or stronger. High strength bolts used for bolted bearing stiffeners shall meet ASTM F3125 Grade A325. Bolts and hardware shall meet M.06.02-3 the Standard Specifications.

### **Construction Methods:**

Before jacking the superstructure members, the Contractor shall coordinate with the Engineer and all utility companies.

Wherever arc gouging, flame cutting, or welding will be used, existing lead paint must first be removed from the area to be affected. Removal of paint for the purpose of removing the existing bearing and pin and hanger assemblies and installing the new bearing and pin and hanger assemblies shall be accomplished by methods described in the special provision “Localized Paint Removal and Field Painting of Existing Steel” or “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)”.

Welding details, procedures and testing methods shall meet the latest ANSI/AASTO/AWS D1.5: Bridge Welding Code, unless otherwise noted.

The Contractor shall prepare and submit to the Engineer Working Drawings, design computations and Catalog Cuts for review in accordance with Article 1.05.02. Jacking loads have been included in the Contract plans. A Professional Engineer licensed in the State of Connecticut shall seal the Working Drawings and design calculations. Each page of the Working Drawings shall have the seal of the Professional Engineer. Only the first page of the design calculations shall have the seal of the Professional Engineer. No work shall begin until acceptance of the drawings has been obtained from the Engineer.

**Site Nos. 1 and 2 only:** The Contractor may use the jacking seats or use temporary shoring towers in front of the abutments. The Contractor shall determine the need and location of the jacking stiffeners depending on the location of the jacks placed. The Contractor will need to verify structural adequacy of the existing steel components and their connections to transfer the jacking loads on to the girders. The entire jacking scheme shall be designed and engineered by the Contractor. The jacking stiffeners shall be left in place for future jacking needs and shall be painted along with the painting on the structure

The jacking design shall meet the following specifications as applicable:

1. The latest AASHTO Standard Specifications for Highway Bridges with the latest interims.
2. The latest AASHTO Temporary Works.
3. The Manual of Steel Construction (AISC).
4. Design Manual for Engineered Wood Construction.
5. The CTDOT’s Bridge Design Manual’s requirements for stiffener design.

The design computations shall include the following:

1. Material designations and material lists.
2. Allowable loads or capacities for all structural members and components. Include appropriate reductions in allowable stresses and loads when materials that are not new or undamaged are used in the construction of the temporary jacking system.
3. Soil or pavement bearing capacities, if applicable.
4. Computed lifting loads to validate the jacking loads provided in the Contract Plans including impact.
5. Anticipated design loads and stresses on structural members and components.
6. The contractor shall determine the need for jacking stiffeners for jacking the existing superstructure. If stiffeners are required they shall be designed by the Contractor.
7. References for all design equations.

The Working Drawings shall include the following:

1. General Notes.
2. Model number and capacity for each jack. The jack shall have a rated capacity at least 1.5 times the anticipated lifting load. The jacks shall be designed to support all dead loads and live loads. Each jack shall have its rated capacity clearly shown on the attached manufacturer's name plate. The Contractor shall use hydraulically operated jacks that are equipped with a mechanical lock off device.
3. Schematic diagram showing the jacks, hoses, pumps, gages and any other jacking equipment. The Contractor shall provide a table equating the hydraulic pressure to the force in the jack so that the Engineer can monitor the pressure gages or other load measuring devices during the jacking process. Use of jacks individually employed or joined to operate collectively is permitted.
4. Maximum anticipated lifting load for each jacking point location.
5. Anticipated lift at each jacking point location.
6. Jacking procedures outlining the complete sequence of operations to be followed when jacking, supporting and lowering the beam ends.
7. A plan showing the layout of the jacking point locations and the details of the bracing and supporting members. The plans shall show all connection details.
8. Details of proposed modifications to the existing structure and the methods of restoration, including modifications and restoration due to temporary scaffolding configurations. When the jacking operation is no longer required, the Contractor shall remove all modifications to the bridge unless the Engineer permits the modifications to remain. The Contractor shall remove the welds by grinding or "arc" gouging without damaging the base metal that is to remain. When arc gouging, a minimum of 1/8 inch of weld metal shall be left in place and the remaining weld metal shall be removed by grinding. Welders who perform arc gouging shall be SMAW certified. Fire resistant tarps shall be used as required to protect property below.
9. Details or descriptions of how the jacks will accommodate movements of the bridge superstructure. Such movements include but are not limited to thermal movements, braking forces, and vibrations.
10. **Site No. 3 & 4 only:** The methods and materials proposed for accessing the utilities, temporary support of the utilities and the loosening procedures to be followed. These

drawings shall include complete details of the methods, materials and equipment the Contractor proposes to use, including working platforms to access the utilities.

The furnishing of design calculations and Working Drawings shall not serve to relieve the Contractor of any responsibility for the safety of the work or the successful completion of the work. One week before jacking the superstructure members, the Engineer shall notify the CTDOT Oversize / Overweight Permit Unit at 860-594-2880 (Email: dot.osowpermits@ct.gov) and inform the office when the superstructure members will be jacked and the duration.

The Contractor shall field verify all Working Drawing dimensions before fabricating any materials. The jacking system, once installed, shall not prohibit the Contractor from performing any work required by the contract.

If part of the jacking system (falsework bents, etc.) is placed adjacent to vehicular traffic, then the Contractor shall protect the jacking system from potential vehicular collision. Jacking systems at locations where there is a pier between the jacking system and adjacent traffic does not need to be protected. At locations where there is metal beam rail between the jacking system and adjacent traffic, the deflection clear zone of the beam rail shall be evaluated by the Engineer to determine if the jacking system is adequately protected. The Contractor's Working Drawings shall indicate the method of protection of the jacking system. The protection system proposed on the Working Drawings shall be pre-approved by the Engineer.

Jacking against the concrete deck or any portion thereof is not permitted.

While jacking the superstructure members, the Contractor shall set the jack level and simultaneously jack as many girders as are necessary to the minimum amount necessary to complete the work. At no time shall the jacking exceed ¼ inch. The differential lift between adjacent beams shall not exceed 1/8 inch at any time during the jacking or lowering of the beams. When the beams are jacked to the minimum amount necessary, the jacks shall be locked off and the hydraulic pressure released.

At no point shall the lifting force at any jacking point exceed the maximum lifting load specified in the design computations.

The Contractor shall carefully inspect and maintain the jacking system during its use.

After the beams are raised, blocking shall be installed under the beam ends to support the superstructure while work is performed on the bearings and substructure components.

After the bearings have been installed and accepted, the beam ends shall be lowered until all loads are carried by the bearings. The beam ends shall be lowered uniformly if required by the Working Drawings and contract.

**Site Nos. 3 and 4 Only:** During jacking, the Contractor shall loosen or replace the supporting U-bolts/threaded rods during the jacking operations (raising and lowering) as necessary to insure

there is no movement of the utilities during the jacking. The U-Bolts/threaded rods shall be retightened, if necessary, at the close of the jacking operations.

The Contractor shall promptly remove and dispose of the equipment and materials. The Contractor shall restore the area to its original condition and to the satisfaction of the Engineer.

Bearing stiffeners installed onto girder webs, for the purpose of stiffening the web, will permanently remain, unless otherwise indicated on the plans, and will receive the same paint system as specified for other steel in the contract. The cost of painting the Contractor installed bearing stiffeners will be considered paid for under item "Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)" or "Localized Paint Removal and Field Painting of Existing Steel".

The Contractor is responsible for any damage caused to any part of the structure, utilities, pavement below, or vehicular traffic as a result of the work required by this special provision. The Contractor shall repair and/or replace any such damage to the satisfaction of the Engineer at no cost to the State.

**Method of Measurement:**

This item being paid for on a lump sum basis will not be measured for payment.

**Basis of Payment:**

This work will be paid for at the contract lump sum for "Jacking Existing Superstructure (Site No. X)", completed and accepted, which price shall include the design, installation and removal of the jacking system, member modification, jacking stiffeners, scaffolding/temporarily supports, the unclamping and re-clamping of utilities, adjusting bridge rail, protection of the jacking system, and all materials, tools, equipment and labor incidental thereto.

The removal of paint necessary to attach or weld jacking stiffeners at jacking point locations and the final cleaning and application of paint on added members, members that are to remain or steel left bare as a result of modification shall be paid for under the item "Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)" or "Localized Paint Removal and Field Painting of Existing Steel".

**Pay Item**

Jacking Existing Superstructure (Site No. X)

**Pay Unit**

L.S.

## **ITEM #0503967A – TEMPORARY WORK PLATFORM**

**Description:** This work consists of the design, construction, maintenance and subsequent removal of temporary work platforms at **Site Nos. 3 and 4** as needed in order to provide safe access to Contract Representatives including the Engineer during specified inspections, and at other times as may be requested. In addition, the platforms also function as the Contractor's work platforms and as debris shields to positively prevent dropped items from entering onto the Metro North Railroad.

When the temporary work platforms shall be used as a debris shield, the temporary work platform shall be constructed such that construction debris and other materials are positively prevented from dropping onto the ground below or on Metro North Railroad property.

**Materials:** Any material or combination of materials may be used to construct the work platform system provided they are properly designed for the purpose intended. Systems utilizing proprietary components shall conform to the manufacturer's specifications and project specifications. The parts list shall be furnished for the proprietary system and the Contractor shall provide the Material Certificates for the parts to the Engineer.

**Construction Methods:** Design of Temporary Work Platforms: The design of temporary work platforms is the responsibility of the Contractor. The design shall meet the latest edition of the AASHTO "Guide Design Specification for Bridge Temporary Works", the AASHTO "Construction Handbook for Bridge Temporary Works", and applicable OSHA requirements including OSHA Safety and Health Requirements, 29 CFR 1926. Platform design shall be required to accommodate anticipated bridge expansion and contraction.

In areas designated on the plans as being above MNRR property, the debris shield shall be capable of withstanding a uniform load of 200 psf and a 2 kip concentrated load.

Temporary Work Platforms shall be designed to be suspended from the existing bridge girders. The temporary work platforms shall not encroach on the 30'-0" minimum clearance required from the bottom of the platform to the top of railroad tracks.

Plans and design calculations for temporary platforms shall be prepared by a licensed Professional Engineer registered in the State of Connecticut and submitted to the Engineer for review at least 30 days prior to construction of platforms. No platform construction shall be done until the Engineer's review has been made and all deficiencies have been addressed. The review of the platform plans by the Engineer shall not relieve the Contractor of any responsibility for safely and adequately designing and constructing platforms.

The temporary platform plan shall also include a description on the methods to provide access to the platform, the anticipated relocation of platform and the procedures and equipment that will be used to protect Contract Representatives including the Engineer.

The temporary platform system shall also include breathable side tarps and side walls as required for protection from inclement weather and the contractor's design shall demonstrate that the existing bridge can support the proposed loads from the platform. The Contractor shall also provide personal safety equipment (including personal safety harnesses and training on its use) that may be needed by Contract Representatives including the Engineer when accessing temporary platforms during inspections.

Platforms shall be constructed in accordance with the accepted platform plans. If during platform construction, site conditions are such that changes to the platforms are required, new platform plans shall be submitted to the Engineer for review prior to continuing construction of the platforms. If, in the opinion of the Engineer, the shields are not secure, the Contractor shall remove and install them to the satisfaction of the Engineer.

When also used as a debris shield, the debris shield shall be installed below any active work area as required on the plans prior to commencing work at that location. While in place, the debris shield shall serve to prevent tools and materials from dropping into Metro North Property or onto the ground below the work area. Once the work in a particular area has been completed and accepted, the debris shield shall be dismantled and/or relocated to facilitate the Contractor's work at other locations. There will be no separate payment for dismantling and relocating the debris shield system.

Unless otherwise specified on the plans or approved by the Engineer, all temporary platforms shall be removed upon completion of repairs and post-installation inspections. The removal of temporary platforms shall be done in such a manner that no damage occurs to the structure.

**Method of Measurement:** This item, being paid on a lump sum basis, will not be measured for payment. The Contractor shall submit to the Department a schedule of payment values for review and comment prior to payment.

**Basis of Payment:** This work shall be paid for at the Contract lump sum price for "Temporary Work Platform", which shall include the design, construction, maintenance, any relocation and subsequent removal of temporary work platforms and tarps; providing access to the platforms and personal safety equipment for the Contract Representatives including the Engineer during inspections and at other times when accessing the platform; and all equipment, material, tools and labor incidental thereto.

**Pay Item**  
Temporary Work Platform

**Pay Unit**  
L.S.

## **ITEM #0511003A – CLEAN EXISTING SCUPPERS**

**Description:** Work under this item shall consist of removing existing steel gratings covering bridge scuppers, cleaning the scuppers and drainage system, restoring functionality of the original bridge drainage system and resetting grates once work is complete. The work shall be as directed by the Engineer, and in accordance with these specifications.

**Materials:** Bituminous concrete pavement shall conform to Section 4.06.

**Construction Methods:** Selection of the equipment used for this work shall be based on the condition of the drainage system at the time this work is to begin and shall be as approved by the Engineer.

Prior to commencement of this work, the Contractor shall submit a work plan to the Engineer for review and approval.

The existing drainage shall be cleaned of all sludge, dirt, sand, gravel and other debris. The intent of this work is to restore the functionality of the original drainage system of the bridge. The Contractor shall use, subject to the approval of the Engineer, manual labor, compressed air, power rodders, forced water and power equipment to perform the work. The approval of such methods shall be based on; avoiding damage to the existing drainage system, affecting satisfactory clean-out and providing environmental safeguards to prevent unnecessary sedimentation.

The Contractor shall provide for the collection of material or debris that is cleaned out from the respective drainage system at the discharge point. Debris in catch basins shall be captured and prevented from spilling into the Naugatuck River. The Contractor shall properly dispose of the material off the site.

Scuppers shall have the surrounding bituminous concrete and overlying grates removed down to the original scupper, if applicable, and concrete deck surface. Existing grates shall be removed prior to cleaning. Any existing damage found to the drainage system shall be brought to Engineer's attention immediately. After cleaning, the grates shall be reinstalled as directed by the Engineer.

This work shall be performed on all existing bridge scuppers, at the locations shown on the plans in accordance with the traffic requirements in the special provisions "Maintenance and Protection of Traffic" and "Prosecution and Progress".

Prior to traffic being allowed back on the adjacent roadway, the work for an individual scupper is to be completed, including removal of the overlying grating, cleaning, restoring the original frame and grating and installing and tapering the bituminous wearing surface. The conditions shall be acceptable to the Engineer.

**Method of Measurement:** Cleaning existing scuppers will be measured as each scupper unit located at discreet locations throughout the bridge. There will be no measurement for removing bituminous concrete, removing and resetting existing grates.

**Basis of Payment:** This work will be paid for at the contract unit price each for “Clean Existing Scuppers” complete in place, which price shall include all materials, equipment, tools, and labor incidental thereto. Any work that requires repairs and replacement in kind of damaged or missing components of the existing drainage system will be paid as extra work, as determined by the Engineer. Installation and tapering of bituminous concrete pavement shall be paid under the appropriate pavement items.

| <u>Pay Item</u>         | <u>Pay Unit</u> |
|-------------------------|-----------------|
| Clean Existing Scuppers | ea.             |

## **ITEM #0512018A – REMOVAL AND REPLACEMENT OF EXISTING BRIDGE DRAINAGE SYSTEM**

### **Description:**

This item shall consist of the partial removal of existing bridge drainage systems and replacement with a proposed system with a modified configuration for the outlet piping at locations and to the approximate limits shown on the plans, or as ordered by the Engineer.

### **Materials:**

#### Pipe

Bridge drainage piping shall be fiberglass and shall be compatible with the existing pipe that will be joined.

Fittings including wyes, cleanouts and reducers shall follow industry standard sizes and radiuses.

#### Pipe Supports

Structural steel for pipe support members shall meet to the requirements of ASTM A709, Grade 36 and shall be galvanized after fabrication to meet the requirements of ASTM A123.

Threaded rods, anchor bolts, bolts and nuts shall meet to the requirements of ASTM A449, A563-Grade DH, A194 Grade 2H or F436 as applicable. All hardware shall be hot dip galvanized in accordance with ASTM A153 or A123 as applicable.

Welding required for fabrication of the pipe supports shall be in accordance with the current AWS specifications.

Commercial pipe supports of non-corrosive materials may be proposed for use and shall be subject to the approval of the Engineer.

Chemical anchors and testing shall be in accordance with Article M.03.07 of the Standard Specifications.

### **Construction Methods:**

Shop Drawings: Before fabricating any materials, the Contractor shall take all field measurements necessary to assure proper fit of the finished work and shall submit Shop Drawings to the Engineer for approval in accordance with Article 1.05.02-3. These drawings shall include to the following information:

- A. A layout plan and elevation showing all lengths, elevations, fittings, supports, and material designations.

- B. Commercial items shall be identified by manufacturer, trade name and catalog number and shall indicate sufficient details.
- C. Pipe supports shall be fully detailed.
- D. All field measurements shall be submitted for reference.

Installation: Existing bridge drainage piping shall be cut at the locations and to the approximate limits shown on the Plans. New pipe of the size, type and material closely matching the existing material or compatible with the existing pipe shall be joined to the existing pipe and routed to the proposed outlet location. All proposed pipe shall be jointed, supported and secured to the existing bridge columns or proposed modified piers as shown on the plans or as required by this specification. The pipe shall be installed to the approximate lines and grades shown on the plans and shall be securely attached to the structure with a maximum spacing of 6' between supports and with a support located within 3' of any location where the pipe alignment shifts away from the supporting column or wall.

Where bridge drainage piping continues below grade to a drainage structure, the horizontal segments of such pipe shall be installed in general accordance with the requirements for Section 6.86. Vertical segments of such pipe shall be held in position while granular fill or other suitable material is placed carefully around the pipe in lifts and compacted.

The adhesive for joining pipes shall be mixed and applied in strict accordance with directions included in the adhesive kit, or as directed by the representatives of the manufacturer. The surfaces of the joint shall be coated with the adhesive immediately before joining adjacent lengths of pipe. After properly joining two adjacent sections, the pipe supports and clamps shall be properly tightened to hold the pipe in place.

Existing pipe supports in areas where existing pipe is removed shall be removed and anchor rods shall be cut flush with the face of the concrete. New anchor rods shall be installed in accordance with manufacturer recommendations for the chemical anchoring material.

At locations where construction staging requires existing bridge drainage piping to be removed, the Contractor shall be responsible for installing any temporary piping and energy dissipation devices to maintain the function of the system until such time that the permanent replacement piping can be installed.

**Method of Measurement:**

This work will be measured for payment by the actual number of linear feet of pipe for bridge drainage, completed and accepted, measured in place along the axis of the pipe through all fittings from the connection to the existing pipe to its terminus at or below grade.

**Basis of Payment:**

This work will be paid for at the Contract unit price per linear foot for "Removal and Replacement of Existing Drainage System", complete in place, which price shall include all materials including pipe, cleanouts, and supports, including hardware, all equipment, tools and labor incidental thereto.

Structural steel members and appurtenances detailed to support the pipe shall be considered incidental to the cost of the permanent pipe installation.

Temporary piping, connections and energy dissipation devices at temporary outlets shall be considered incidental to the cost of the permanent pipe installation.

Geotextile, granular fill, and riprap placed below bridge drainage piping shall be paid under the applicable pay item.

| <u>Pay Item</u>  | <u>Pay Unit</u> |
|--|-----------------|
| Removal and Replacement of Existing Bridge Drainage System | LF              |

## **ITEM #0520032A – ELASTOMERIC CONCRETE HEADER**

**Description:** Work under this item consists of furnishing and installing elastomeric concrete headers as shown on the plans. Work also includes saw-cutting and removal of bituminous concrete; disposal of removed materials and all debris from the header cut-out; abrasive blast cleaning; and, drilling, grouting, furnishing and installing reinforcing bars to anchor the headers to the concrete below.

### **Materials:**

1. **Field-mixed bridge joint header elastomeric concrete material.** The elastomeric concrete material shall be field-mixed and shall consist of two-part polymer, kiln-dried pre-graded aggregate, and bonding agent with the material being supplied as a unit by the Manufacturer.

A Materials Certificate will be required in accordance with the requirements of Article 1.06.07 certifying the conformance of the elastomeric concrete for bridge expansion joint header components to the requirements set forth in this specification.

Each container of product furnished shall be delivered to the Site in the Manufacturer's original sealed container. Each container shall be labeled to include the name of the material, Manufacturer's name and contact information, expiration date, mixing instructions and the Manufacturer's lot/batch number. Material safety data sheets shall accompany each shipment. All materials must be stored in accordance with the Manufacturer's written recommendations and as approved by the Engineer. Materials whose shelf-life has expired shall not be used in the Project.

Provide material that complies with the following minimum requirements at either 14 days or at the end of the specified curing time. In addition to the following requirements, the bridge elastomeric concrete header shall be resistant to water absorption, chemical, UV, ozone exposure and shall be capable of withstanding temperature extremes.

| <b>Elastomeric Concrete Properties<br/>at 24 hr. Cured Stage</b> | <b>Test Method</b> | <b>Requirement</b> |
|--|--------------------|--------------------|
| Compressive Strength, Method B                                   | ASTM C579          | Min. 2000 psi      |
| Bond Shear Strength  | ASTM C882          | Min. 700 psi       |
| Abrasion Resistance Wear Index                                   | ASTM C501          | Max. 1             |
| Resilience   | ASTM D695          | Min. 70%           |
| Durometer Hardness   | ASTM D2240         | Min. 50            |
| Bond Strength to Concrete  | ASTM C882          | Min. 450 psi       |

The following Elastomeric Concrete products are qualified for use under this item:

**Manufacturer:**

Silicone Specialties Inc.  
430 S. Rockford  
Tulsa, OK 74120  
Phone: (918) 587-5567

**Qualified Product**

Silspec 900 Polymer Nosing System

Watson Bowman Acme Corp.  
95 Pineview Drive  
Amherst, NY 14228  
Phone: (800) 677-4922

Wabo Crete II

R. J. Watson Inc.  
11035 Walden Ave  
Alden, NY 14004  
Phone: (716) 901-7020

Poly-Tron Elastomeric Concrete

2. **Reinforcing Bars:** Reinforcing bars shall be glass fiber-reinforced polymer (GFRP) meeting the requirements of ACI 440.6, "Specification for Carbon and Glass Fiber-Reinforced Polymer Bar Materials for Concrete Reinforcement." All GFRP reinforcement shall be deformed or sand-coated. When hooks or bends are shown on the plans, bars shall be fabricated as shown. Bending of bars in the field will not be allowed. A Materials Certificate will be required for the reinforcing bars in accordance with the requirements of Article 1.06.07.
3. **Chemical Anchor Material:** Chemical anchor material to secure the GFRP reinforcement in drilled holes within the header cut-out shall meet the requirements of M.03.07 Chemical Anchors.

Construction Methods:

Submittals:

The Contractor shall submit the following in accordance with the requirements of Article 1.05.02:

- Product data for the elastomeric concrete header, reinforcing bars and chemical anchor material
- Written installation instructions for the elastomeric concrete headers, including surface preparation, conditions that are unacceptable for installation of the headers, the materials and methods for forming the headers while allowing thermal movement of the bridge, finishing and curing requirements. The instructions shall also address, where applicable, the proper preparation of stage construction joints in the headers.
- Written installation instructions for the chemical anchor material. Include tools and equipment required for the installation, hole diameter and depth, and preparation of the hole before the chemical anchoring material is placed.

An experienced technical representative from the manufacturer, acceptable to the Engineer, shall be present during initial installations of the elastomeric concrete headers to provide the Contractor aid and independent instruction to obtain an installation satisfactory to the Engineer.

Block-outs shall be formed between elastomeric concrete headers as required to accept the subsequent installation of the preformed joint seal.

Work under this item shall consist of installing the bridge elastomeric concrete header at the locations shown on the plans and in stages in accordance with the traffic requirements in the special provisions "Maintenance and Protection of Traffic" and "Prosecution and Progress."

Elastomeric concrete is moisture-sensitive. Therefore, after properly curing new decks and deck ends that have been reconstructed or patched, the Contractor shall measure and document the moisture content of the concrete before installation of elastomeric concrete headers. The Contractor shall not install the elastomeric concrete against the concrete deck if the moisture content exceeds 6% (or lower, if required by the manufacturer's technical representative). Measurement of moisture content shall be conducted on the substrate by the Contractor using a "Sovereign Portable Electronic Moisture Master Meter," a "Tramex CMEXpertII Concrete Moisture Meter" or approved equal. One measurement shall be taken at the gutterline below each proposed header. The minimum frequency shall be one measurement every twelve feet along each proposed header. Additional measurements may be ordered by the Engineer.

Tools, equipment, and techniques used to prepare the bridge elastomeric concrete header shall be supplied by the Contractor and approved by the Engineer and the Manufacturer's technical representative prior to the start of construction.

The Contractor shall provide sufficient material in storage at the Site prior to beginning work on this item, to complete the entire bridge elastomeric concrete header as detailed on the plans or as directed by the Engineer.

The Contractor shall saw cut the overlay full depth in order to delineate the location of the elastomeric concrete headers. At the time of installation of the bridge elastomeric concrete header, all existing material shall be removed from the proposed bridge joint header, including all existing joint systems in the deck, sidewalk, parapet and median.

All surfaces in the bridge headers shall be cleaned of all pavement, membrane, dust, dirt, debris, and other loose materials as recommended by the Manufacturer and shall be free of frost or dew that could affect the bond of the header material to the concrete. Additionally, the concrete to which the header will be bonded shall be blast cleaned as recommended by the Manufacturer. When blast cleaning is performed under this specification the Contractor shall take adequate measures to ensure that the blast cleaning will not cause damage to adjacent traffic or other facilities. Following blast cleaning, the surfaces shall again be cleaned to remove any remaining dust.

Forms shall be used to keep the elastomeric concrete from entering the open joint between the concrete deck slabs. The completed headers shall be parallel and straight within 1/8 inch in 10

feet of length. **The joint gap between the headers may not be formed with polystyrene, polyurethane, polyisocyanurate or any other similar material.** The forms for each pair of headers shall be secured so each can move independently of the other, to allow for thermal movement of the deck. Forms shall be designed so that, upon completion of the headers, the forms can be removed. Form, place and cast the elastomeric concrete headers to smoothly follow the surface of the finished roadway at the depth below the surface detailed on the plans.

The Contractor shall drill holes in the concrete and secure with chemical adhesive the hooked reinforcing bars as detailed on the plans. After cleaning any debris and dust from this operation, additional bars shall be placed along the header and secured to the hooked dowels as detailed on the plans.

No elastomeric concrete shall be installed below 45°F. The mixing and installation of the two-part bridge elastomeric concrete header shall be done in strict conformance with the Manufacturer's written recommendations including the use of static mixing devices if so indicated. The elastomeric concrete shall be placed to completely fill the forms, using a trowel to consolidate the material and prevent honeycombing and voids. Finish the surface to a moderately rough texture such as that produced by a wood float.

Traffic must not be allowed on the newly-placed bridge elastomeric concrete header until the material cures properly in accordance with the Manufacturer's specification. During curing time the elastomeric concrete header shall be protected from damage. If recommended by the manufacturer or technical representative, the elastomeric concrete shall be heat-cured with the use of external heat sources. Curing may require that heat be applied for approximately 2 to 3 hours. Traffic shall not be permitted over the joint until proper cooling of the material has occurred and the elastomeric concrete has developed adequate strength in accordance with the manufacturer's recommendations.

**Method of Measurement:** This work will be measured for payment by the number of cubic feet of elastomeric concrete header installed and accepted into the final work. The volume will be calculated using measured width, length and depth of header. No calculation will be made to deduct the block-out area above the shelf. The width of header will be measured perpendicular to the joint, from the end of the bridge deck, approach slab or face of backwall to the specified pavement sawcut. The length will be measured along the joint side of the header, from face of curb to face of curb. Measurements of header depth shall be taken at sufficient frequency to calculate the average depth of header over its entire length. Elastomeric concrete material in the parapet curb will not be measured for payment.

**Basis of Payment:**

This work will be paid for at the Contract unit price per cubic foot for “Elastomeric Concrete Header,” complete, which price shall include all equipment, tools, labor, and materials, incidental thereto, including preparation of the surface and proper disposal of debris. The cost of the technical representative shall also be included in the cost of this item.

Work associated with the preformed joint seal to be installed in the deck joint gap will be paid for under a separate item.

**Pay Item**

Elastomeric Concrete Header

**Pay Unit**

c.f.

## **ITEM #0520036A – ASPHALTIC PLUG EXPANSION JOINT SYSTEM**

**Description:** Work under this item shall consist of furnishing and installing an asphaltic plug expansion joint system (APJ) in conformance with ASTM D6297, as shown on the plans, and as specified herein.

Work under this item shall also consist of the removal and disposal of bituminous concrete, membrane waterproofing, existing joint components and sealing elements, cleaning and sealing median barrier joints, parapet joints, and sidewalk joints.

Work under this item excludes the removal of Portland cement concrete headers.

**Materials:** The APJ component materials shall conform to ASTM D6297 and the following:

Aggregate: The aggregate shall meet the following requirements:

- a) Loss on abrasion: The material shall show a loss on abrasion of not more than 25% using AASHTO Method T96.
- b) Soundness: The material shall not have a loss of more than 10% at the end of five cycles when tested with a magnesium sulfate solution for soundness using AASHTO Method T 104.
- c) Gradation: The aggregate shall meet the requirements of Table A below:
- d) Dust: aggregate shall not exceed 0.5% of dust passing the #200 sieve when tested in accordance with AASHTO T-11.

**Table A**

| <b><u>Square Mesh Sieves</u></b> | <b>1"<br/>(25.0 mm)</b> | <b>¾"<br/>(19.0 mm)</b> | <b>½"<br/>(12.5 mm)</b> | <b>⅜"<br/>(9.5 mm)</b> | <b>No. 4<br/>(4.75 mm)</b> |
|----------------------------------|-------------------------|-------------------------|-------------------------|------------------------|----------------------------|
| <b>% passing</b>                 | <b>100</b>              | <b>90 - 100</b>         | <b>20 - 55</b>          | <b>0 - 15</b>          | <b>0 - 5</b>               |

A sample of the aggregate shall be submitted to the Department with a Certified Test Report in accordance with Article 1.06.07 for each 20 tons of loose material or its equivalent number of bags delivered to the job site. The Certified Test report must include a gradation analysis resulting from a physical test performed on the actual material that accompanies the report.

Anti-Tacking Material: This material shall be a fine graded granular material with 100% passing the 3/16" sieve and no more than 5% passing the #200 when tested in accordance with AASHTO T-27.

Backer Rod: All backer rods shall satisfy the requirements of ASTM D5249, Type 1.

Bridging Plate: The bridging plates shall be steel conforming to the requirements of ASTM A36 and be a minimum ¼" thick and 8" wide. For joint openings in excess of 3" the minimum plate dimensions shall be ⅜" thick by 12" wide. Individual sections of plate shall not exceed

4' in length. Steel locating pins for securing the plates shall be size 16d minimum, hot-dip galvanized, and spaced no more than 12" apart.

**Concrete Leveling Material:** Shall be a cementitious-based material that conforms to ASTM C928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repair, for R3 performance requirements in Table 1 and achieve the following:

- a. Final set in 45 Minutes
- b. 2500 psi compressive strength in 24 hours
- c. 5000 psi compressive strength in 7 days

**Parapet Sealant:** The sealant used in parapet joint openings shall be a single component non-sag silicone sealant that conforms to the requirements of ASTM D5893.

**Sidewalk Sealant:** The sealant used in sidewalk joint openings shall be a rapid cure, self-leveling, cold applied, two-component silicone sealant. The silicone sealant shall conform to the requirements listed in Table B:

**Table B**

| <b>Properties - As Supplied</b>         | <b>Test Method</b>          | <b>Requirement</b> |
|---|-----------------------------|--------------------|
| Extrusion Rate                          | ASTM C1183                  | 200-600 grams/min  |
| Leveling                                | ASTM C639                   | Self-Leveling      |
| Specific Gravity                        | ASTM D792                   | 1.20 to 1.40       |
| <b>Properties - Mixed</b>               | <b>Test Method</b>          | <b>Requirement</b> |
| Tack Free Time                          | ASTM C679                   | 60 min. max.       |
| Joint Elongation – Adhesion to concrete | ASTM D5329 <sup>1,2,3</sup> | 600% min           |
| Joint Modulus @ 100% elongation         | ASTM D5329 <sup>1,2,3</sup> | 15 psi max         |
| Cure Evaluation                         | ASTM D5893                  | Pass @ 5 hours     |

1. Specimens cured at 77±3°F and 50±5% relative humidity for 7 days
2. Specimens size: ½" wide by ½" thick by 2" long
3. Tensile Adhesion test only

The date of manufacture shall be provided with each lot. No sealant shall be used beyond its maximum shelf-life date.

The two-part silicone sealants shown in Table C are known to have met the specified requirements:

**Table C**

| <b>Product</b>     | <b>Supplier</b>   |
|--------------------|---|
| Dow Corning 902RCS | Dow Corning Corporation<br>2200 W Salzburg Road<br>Auburn, Michigan 48611           |
| Wabo SiliconeSeal  | BASF/Watson Bowman Acme Corporation<br>95 Pineview Drive<br>Amherst, New York 14228 |

Other two-component silicone joint sealants expressly manufactured for use with concrete that conform to the aforementioned ASTM requirements will be considered for use provided they are submitted in advance for approval to the Engineer. Other joint sealants will be considered for use only if a complete product description is submitted, as well as documentation describing at least five installations of the product. These documented installations must demonstrate that the product has performed successfully for at least three years on similar bridge expansion joint applications.

A Materials Certificate and Certified Test Report for the asphaltic binder shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07 certifying that the asphaltic binder satisfies the requirements of the most current version of ASTM D6297.

A Materials Certificate for all other components of the APJ, leveling material, backer rod and sealant used in sealing parapet and sidewalk joint openings, shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07

**Construction Methods:** The APJ shall be installed at the locations shown on the plans and in stages in accordance with the traffic requirements in the special provisions “Maintenance and Protection of Traffic” and “Prosecution and Progress”.

At least 30 days prior to start of the work, the Contractor shall submit to the Engineer for approval a detailed Quality Control Plan for the installation of the APJ. The submittal shall include:

- a) A list of all manufactured materials and their properties to be incorporated in the joint system, including, but not limited to the asphaltic binder, anti-tack material, backer rod, sealant, leveling material, as well as the aggregate's source.
- b) A detailed step by step installation procedure and a list of the specific equipment to be used for the installation. The Quality Control Plan must fully comply with the specifications and address all anticipated field conditions, including periods of inclement weather.

The APJ shall not be installed when bituminous concrete overlay or joint cutout is wet. The APJ shall only be installed when the bridge superstructure surface temperature is within the limits specified in Table D and when the ambient air temperature is within the range of 45°F to 95°F. The bridge superstructure surface temperature range is determined using the thermal movement

range provided on the contract plans for the proposed APJ deck installation location and the selected APJ product.

**Table D**

| <b>Installation Restrictions</b>                              |  |
|---|--|
| <b>Designed Deck Joint Thermal Movement Range<sup>2</sup></b> | <b>Bridge Superstructure Surface Temperature<sup>1</sup></b> |
| 0" to 1"  | 45° F to 95° F   |
| 1-1/8"  | 45° F to 90° F   |
| 1-1/4"  | 45° F to 80° F   |
| 1-3/8"  | 45° F to 70° F   |
| 1-1/2"  | 45° F to 65° F   |

1. *The superstructure surface temperature shall be determined from the average of three or more surface temperature readings taken at different locations on the interior girder surfaces by the Contractor as directed by the Engineer. Temperature measurements of the superstructure shall be taken by the contractor with a calibrated hand held digital infrared laser-sighted thermometer on the surfaces of an interior steel girder, or interior concrete girder protected from direct sunlight. The infrared thermometer to be supplied by the Contractor for this purpose shall meet certification requirements of EN61326-1, EN61010-1, and EN60825-1 maintained by the European Committee for Electrotechnical Standardization (CENELEC). The thermometer shall have a minimum distance-to-spot ratio of 50:1 and shall have adjustable emissivity control. The thermometer shall have a minimum accuracy value of  $\pm 1\%$  of reading or  $\pm 2^\circ\text{F}$ , whichever is greater. The thermometer shall be used in strict accordance with the manufacturer's written directions. An additional infrared thermometer satisfying the same standards to be used in this application shall also be provided to the Engineer for quality assurance purposes.*
2. *Linear interpolation may be used to determine an allowable surface temperature range for thermal movement ranges in between values shown in the table, as approved by the Engineer.*

Prior to installing the APJ, the Contractor shall determine the exact location of the deck joint beneath the bituminous concrete overly.

The APJ shall be installed symmetrically about the deck joint opening to the dimensions shown on the plans or as directed by the Engineer; not to exceed 24 inches measured perpendicular to the

deck joint. The proposed saw cut lines shall be marked on the bituminous concrete overlay by the Contractor and approved by the Engineer, prior to saw-cutting. The saw-cuts delineating the edges of the APJ shall extend full depth of the bituminous concrete overlay.

The existing bituminous concrete overlay, waterproofing membrane and/or existing expansion joint material, within the saw cut limits shall be removed and disposed of by the Contractor to create the joint cutout.

Concrete surfaces that will support the bridging plates shall be smooth and form a plane along and across the deck joint. Rough or damaged concrete surfaces shall be repaired with a leveling compound meeting the requirements of this specification. Deteriorated concrete areas within the joint limits shall be repaired as directed by the Engineer: such repairs, when deemed necessary by the Engineer, shall be compensated for under the applicable concrete deck repair items in the Contract. The existing and repaired concrete surfaces shall provide continuous uniform support for the bridging plate and prevent the plate from rocking and deflecting.

Prior to the installation of the backer rod, all horizontal and vertical surfaces of the joint cutout shall be abrasive blast cleaned using an oil-free, compressed air supply. The entire cutout shall then be cleared of all loose blast media, dust, debris and moisture using an oil-free, hot air lance capable of producing an air stream at 3,000°F with a velocity of 3,000 feet per second.

A single backer rod, with a diameter at least 25% greater than the existing joint opening at the time of installation, shall be installed at an inch below the bridging plate in the existing deck joint opening between the concrete edges.

Asphaltic binder shall be heated to a temperature within the manufacturer's recommended application temperature range which shall be provided in the Quality Control Plan. During application, the temperature of the binder shall be maintained within this range. In no case shall the temperature of the binder go below 350° F nor exceed the manufacturer's recommended maximum heating temperature.

Asphaltic binder shall then be poured into the joint opening until it completely fills the gap above the backer rod. A thin layer of binder shall next be applied to the all horizontal and vertical surfaces of the joint cutout.

Bridging plates shall be abrasive blast-cleaned on-site prior to installation and then placed over the deck joint opening in the joint cutout. The plates shall be centered over the joint opening and secured with locating pins along its centerline. The plates shall be placed end to end, without overlap, such that the gap between plates does not exceed ¼". The plates shall extend to the gutter line and be cut to match the joint's skew angle, where concrete support exists on both sides of the joint. Within APJ installation limits, where concrete support does not exist at both sides of the joint opening (such as where a bridge deck end abuts a bituminous concrete roadway shoulder), bridging plates shall not be installed. Installed bridging plates shall not rock or deflect in any way. After installation of bridging plates, a thin layer of asphaltic binder shall be applied to all exposed surfaces of the plates.

The remainder of the joint cutout shall then be filled with a mixture of hot asphaltic binder and aggregate prepared in accordance with the submitted Quality Control Plan and the following requirements:

- The aggregate shall be heated in a vented, rotating drum mixer by the use of a hot-compressed air lance to a temperature of between 370° F. to 380° F. This drum mixer shall be dedicated solely for the heating and, if necessary, supplemental cleaning of the aggregate. Venting of the gas and loose dust particles shall be accomplished through ¼” drilled holes spaced no more than 3” on center in any direction along the entire outside surface of the drum
- Once the aggregate has been heated, it shall then be transferred to a secondary drum mixer where it shall be fully coated with asphaltic binder. A minimum of two gallons of binder per 100lbs of stone is required.
- The temperature of the aggregate and binder shall be monitored by the contractor with a calibrated digital infrared thermometer.
- The coated aggregate shall be loosely placed in the joint cutout in lifts not to exceed 2 inches.
- Each lift shall be leveled, compacted and then flooded with hot asphaltic binder to the level of the aggregate to fill all voids in the coated aggregate layer. The surface of each lift shall be flooded until only the tips of the aggregate protrude out of the surface.
- The final lift shall be placed such that no stones shall project above the level of the adjacent overlay surface following compaction of the coated aggregate.
- Following installation of the final lift, sufficient time and material shall be provided to allow all voids in the mixture to fill. This step may be repeated as needed.
- The joint shall then be top-dressed by heating the entire area with a hot-compressed air lance and applying binder. The final joint surface must be smooth with no protruding stones and be absent of voids.
- Once top-dressed, the joint shall have an anti-tack material spread evenly over the entire surface to prevent tracking.

The Contractor shall be responsible for removing all binder material that leaks through the joint and is deposited on any bridge component, including underside of decks, headers, beams, diaphragms, bearings, abutments and piers.

Traffic shall not be permitted over the joint until it has cooled to 130° F when measured with a digital infrared thermometer. Use of water to cool the completed joint is permitted.

#### Sidewalk, parapet, and/or curb joint openings

Before placement of any sealing materials in parapets, curbs, or sidewalks, the joints shall be thoroughly cleaned of all scale, loose concrete, dirt, dust, or other foreign matter by abrasive blast cleaning. Residual dust and moisture shall then be removed by blasting with oil free compressed air using a hot air lance. Projections of concrete into the joint space shall also be removed. The backer rod shall be installed in the joint as shown on the plans. The joint shall be clean and dry before the joint sealant is applied. Under no circumstances is the binder material to be used as a substitute for the joint sealant.

Whenever abrasive blast cleaning is performed under this specification, the Contractor shall take adequate measures to ensure that the abrasive blast cleaning will not cause damage to adjacent traffic or other facilities.

The joint sealant shall be prepared and placed in accordance with the manufacturer's instructions and with the equipment prescribed by the manufacturer. Extreme care shall be taken to ensure that the sealant is placed in accordance with the manufacturer's recommended thickness requirements.

The joint sealant shall be tooled, if required, in accordance with the manufacturer's instructions.

Primer, if required, shall be supplied by the sealant manufacturer and applied in accordance with the manufacturer's instructions.

When the sealing operations are completed, the joints shall be effectively sealed against infiltration of water. Any sealant which does not effectively seal against water shall be removed and replaced at the Contractor's expense.

Any installed joint that exhibits evidence of failure, as determined by the Engineer, such as debonding, cracking, rutting, or shoving of the APJ mixture shall be removed and replaced full-width and full-depth to a length determined by the Engineer at no additional cost to the State.

**Method of Measurement:** This work will be measured for payment by the number of cubic feet of "Asphaltic Plug Expansion Joint System" installed and accepted within approved horizontal limits. No additional measurement will be made for furnishing and installing backer rod and joint sealant in the parapets, concrete medians, curbs and/or sidewalks.

**Basis of Payment:** This work will be paid for at the contract unit price per cubic foot for "Asphaltic Plug Expansion Joint System," complete in place, which price shall include the saw-cutting, removal and disposal of bituminous concrete, membrane waterproofing, existing joint components and sealing elements, the furnishing and placement of the leveling compound, cleaning of the joint surfaces, furnishing and installing bridging plates, the furnishing and installing of the asphaltic plug joint mixture, the cost of furnishing and installing joint sealant in the parapets, concrete medians, curbs and sidewalks, and all other materials, equipment including, but not limited to, portable lighting, tools, and labor incidental thereto. No additional payment shall be made for the 12" wide bridging plates that are required for deck joint openings with widths in excess of 3".

If directed by the Engineer, additional deck repairs will be addressed and paid for under the applicable concrete deck repair items in the Contract.

**Pay Item**

Asphaltic Plug Expansion Joint System

**Pay Unit**

C.F.

## **ITEM #0520041A – PREFORMED JOINT SEAL**

**Description:** Work under this item consists of furnishing and installing a preformed joint seal as shown on the plans. Work also includes a pre-installation survey to measure the pavement depth at all locations where the joint meets the curb.

**Materials:** One of the following Preformed Joint Seals specified on the plans shall be supplied:

V-Shaped Silicone Seals:

1. Silicoflex:  
RJ Watson, Inc.  
11035 Walden Ave  
Alden, New York 14004  
Tel: (716) 901-7020  
Website: <http://www.rjwatson.com>
2. V-Seal:  
D.S. Brown Company  
300 East Cherry Street  
North Baltimore, Ohio 45872  
Tel: (419) 257-3561  
Website: <http://www.dsbrown.com>

Foam-Supported Silicone Seals:

3. Bridge Expansion Joint System (B.E.J.S.):  
EMSEAL Joint Systems Ltd.  
25 Bridle Lane,  
Westborough, MA 01581  
Tel: (508) 836-0280  
Website: <http://www.emseal.com>
4. Wabo FS Bridge Seal  
Watson Bowman Acme Corp.  
95 Pineview Drive  
Amherst, NY 14228  
Tel: (716) 691-9239  
Website: <https://wbacorp.com/products/bridge-highway/joint-seals/wabofsbridge/>

When foam-supported silicone joint seals are the only type allowed on the plans (such as at bridge joints that extend through sidewalks), the CTDOT will consider products from other foam-supported silicone joint manufacturers, if the products have been installed by another State Department of Transportation, are functioning successfully in a similar climate to Connecticut's

for at least one year, and are deemed by the CTDOT to be suitable for use in the specific application for which the Contractor is requesting. To be considered, the Contractor shall submit documentation indicating the product name, manufacturer, the contact information for a Department of Transportation official who can confirm the successful installation and continued success of the product, the date of installation and the nature of the installation, including thermal movement range and skew of the installed joint.

A Materials Certificate for all components of the selected preformed joint seal shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07

**Construction Methods:** All work at each joint location shall be accomplished in accordance with “Maintenance and Protection of Traffic” and “Prosecution and Progress.”

**Submittals:**

Prior to ordering preformed joint seals, and prior to forming block-outs for the preformed joint seals in the headers, the Contractor shall submit the following to the Engineer:

- The Manufacturer and product information of the selected joint system;
- Material safety data sheets (MSDS) and technical product information;
- Name and credentials of a qualified technical representative supplied by the manufacturer and acceptable to the Engineer. This person shall be available to provide assistance at the beginning of the work and be available to provide training and guidance throughout the project.
- A detailed, step-by-step installation procedure, including surface preparation, splicing of the preformed joint seal, and a list of the specific equipment to be used for the installation.

**Installation:** The technical representative of the accepted joint system shall be notified of the scheduled installation a minimum of 2 weeks in advance and be present to provide direction and assistance for the first joint installation and succeeding joint installations until the Contractor becomes proficient in the work and to the satisfaction of the Engineer.

The minimum ambient temperature for installing any of the qualified, preformed joint seals is 40°F and rising. When the manufacturer’s requirement for minimum installation temperature is greater than 40°F, the manufacturer’s requirement will govern.

All concrete surfaces to which sealing glands will be bonded shall be prepared in accordance with International Concrete Repair Institute (ICRI) concrete surface profile standards. The minimum acceptable surface profile is CSP2 (grinding), but CSP3 (light abrasive blast) is preferred. Any discontinuities or sharp projections into the plane of the joint shall be ground smooth prior to blasting. Whenever abrasive blast cleaning is performed, the Contractor shall take adequate measures to ensure that the abrasive blast cleaning will not cause damage to adjacent traffic or other facilities. Traffic will not be allowed to pass over the joint after blasting has occurred.

Following blasting, the joint surfaces shall be wiped down or blown clean as recommended by the manufacturer.

The joint surfaces shall be completely dry before installing any of the components of the selected joint seal. The selected joint seal shall not be installed immediately after precipitation or if precipitation is forecast. Joint preparation and installation of the selected preformed joint seal must be done during the same day.

The selected joint sealing system shall be installed continuously with no field splices in the preformed seal in the roadway section, unless field splices are allowed by the manufacturer of the selected preformed joint seal. In no case shall field splices of the preformed joint seal be allowed in a wheel path or within the roadway shoulder. When splices cannot be avoided due to traffic constraints, the splice shall be at a painted lane line.

After the joint seal has been installed, water shall not be able to penetrate the joint. Any joint seal that does not effectively seal against water shall be removed and replaced at the Contractor's expense.

**Method of Measurement:** This work will be measured for payment by the number of linear feet of preformed joint sealing system installed and accepted. The measurement will be made along the centerline of the joint at the top surface of header, curb, sidewalk and parapet.

**Basis of Payment:** This work will be paid for at the Contract unit price per linear foot for "Preformed Joint Seal," complete in place, including all materials, equipment, tools, and labor incidental thereto.

The Contract unit price shall include the cost of assistance from a technical representative of the selected joint system.

**Pay Item**

Preformed Joint Seal

**Pay Unit**

l.f.

**ITEM #0521001A – ELASTOMERIC BEARING PADS**

*Section 5.21 “Elastomeric Bearing Pads” is amended as follows:*

**Article 5.21.01 – Description:**

Work under this item shall consist of removal and proper disposal of the existing bearing pads and furnishing and installing the new elastomeric bearing pads and all other necessary materials and equipment to complete the work at the locations shown on the plans.

**Article 5.21.03 – Construction Method:**

*Section 5.21.03.2(b) shall be deleted.*

*Section 5.21.03.4 shall be amended to read as follows:*

The elastomeric bearing pads shall be bonded to vulcanized load plate as shown in the plans. All contact surfaces to which the adhesive is to be applied shall be free of oil, paint, lacquer, galvanizing, mill scale, and rust. Primer, if required, and adhesive shall be applied in strict accordance with the manufacturer’s printed instructions.

The adhesive shall be mixed in strict accordance with the manufacturer’s printed directions.

| <b>Pay Item</b>          | <b>Pay Unit</b> |
|--------------------------|-----------------|
| Elastomeric Bearing Pads | c.i.            |

## **ITEM #0521003A – BEARING REPLACEMENT WITH ELASTOMERIC BEARING PADS**

**Description:** Work under this item shall consist of the removal and disposal of existing bearing assemblies, furnishing and installing new elastomeric bearing pads, beveled sole plates and load plates as shown on the plans, in accordance with these specifications, and as directed by the Engineer.

Work under this item shall also include furnishing and installing steel plates over slotted holes on the bottom flange of beams where anchor bolts have been removed, obtaining field measurements of the existing bearings and existing concrete bearing pads, the removal of any steel keeper assemblies and the cutting of existing anchor bolts.

### **Materials:**

#### **1. Elastomer:**

**Site No. 1 & 2:** The elastomeric compound, used in the construction of the bearings, shall contain only virgin polychloroprene (Neoprene) and shall be low-temperature Grade 3 as defined by ASTM D4014 and shall have a durometer hardness of 60 on the Shore “A” scale and meet the requirements of Section 18.2 of the AASHTO LRFD Bridge Construction Specifications and AASHTO M 251.

**Site No. 3 & 4:** The elastomeric compound, used in the construction of the bearings, shall contain only virgin polychloroprene (Neoprene) as the raw polymer. The elastomer shall have a specified shear modulus of 0.095 ksi. It shall meet the requirements of Section 18.2 of the AASHTO LRFD Bridge Construction Specifications and AASHTO M 251. The elastomer shall be low- temperature Grade 3 as defined by ASTM D4014.

Each steel-laminated elastomeric bearing shall have marked on it, with indelible ink, the following: the Manufacturer's identification code or symbol, the month and year of manufacture, the orientation, order number, lot number, bearing identification number, and elastomer type and grade (Neoprene, Grade 3). The markings shall be placed on a side of the bearing that is visible after installation.

The Contractor shall furnish test bearings in addition to the bearings shown on the plans for each type (size and thickness) of bearings for destructive testing. The furnished test bearings shall not include sole plates or load plates.

The Contractor shall furnish a Certified Test Report, confirming that the elastomeric bearings satisfy the requirements of these specifications, in conformance with the requirements set forth in Article 1.06.07.

**2. Steel Laminae:** The internal steel laminae shall meet the requirements of ASTM A 1011 Grade 36. The internal steel laminae edges shall be ground smooth or otherwise rounded before molding the bearing.

3. External Steel Plates: Steel sole and load plates shall be AASHTO M270, Grade 36 and shall meet the requirements of Article M.06.02.

All surfaces of the sole plate or load plates shall be abrasive blast cleaned before being hot bonded to the bearing during vulcanization. The application of paint on the load plates shall be in accordance with the item “Localized Paint Removal and Field Painting of Existing Steel” or “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X) after the bearings have been installed.

Adhesive bonding of the elastomer portion of the bearings to external steel plates or concrete is not permitted.

4. Elastomeric Shims: The elastomer for shims shall meet the same requirements as the bearing elastomer and be 1/16 inches to 1/8 inches thick, if directed by the Engineer.

5. Adhesive: The adhesive for bonding the shims shall consist of a long lasting, high strength, cold applied, air cured, water and heat resistant material specifically formulated for bonding neoprene and shall meet the following requirements:

| Property                         | Requirement               | ASTM Test Procedure |
|----------------------------------|---------------------------|---------------------|
| Adhesion                         | 30#/in.                   | D 429, Method B     |
| Hardness                         | 50 $\pm$ 5 Shore A points | D 2240              |
| Tensile Strength, min            | 1800 psi                  | D 412               |
| Elongation before breaking, min. | 750 %                     | D 412               |

6. Bolts, Nuts and Washers: High strength bolts shall meet the requirements of ASTM F3125 Grade A325. The nuts shall meet the requirements of ASTM A563, Grade DH or DH3. The washers shall meet the requirements ASTM F436 Type 1.

7. Non-Shrink Grout: Non-shrink grout shall meet the requirements Article M.03.05.

### **Construction Methods:**

Before submitting Shop Drawings, the Contractor shall obtain field measurements of the existing bearings and concrete bearing pads in order to verify compatibility with the elastomeric bearings as detailed. The Contractor shall record the grade of each beam to accurately produce a new beveled sole plate. The Contractor shall submit field measurements with the Shop Drawings. See “Appendix – A: Bearing Assembly Field Measurements” of this special provision for a sample of the information to be submitted.

The Contractor shall notify the Engineer prior to submitting Shop Drawings if after taking field measurements of the existing bearing assembly height, it is determined the proposed sole plate thickness at the center line of bearing is less than 1.5 inches.

The Contractor shall submit Shop Drawings to the Engineer, for review and approval, in accordance

with Article 1.05.02. These drawings shall include the following information: Manufacturer's name, complete details of the bearings, material designations, nominal hardness of the elastomer, the quantity of bearings required, including test bearings, and the location of the bearing identification.

A minimum of thirty (30) days prior to the installation of the elastomeric bearings, the Contractor shall deliver to the job site the required number of bearings for installation plus the required number of test bearings. The Contractor shall pack the bearings in containers holding no more than ten (10) bearings. Bearings in one container shall contain the same type and size of bearing required for one structure only. The Contractor shall mark the container with the project number, the bridge number, the number of bearings, the intended location on the structure, the name of the Manufacturer and the lot number.

The Contractor shall remove the existing bearing assemblies using methods that do not damage them or the existing beam. Existing welds shall be removed by machining, grinding, chipping, or air carbon-arc gouging and in such a manner that the remaining base metal is not wicked or undercut. A minimum of  $\frac{1}{8}$ " of weld metal shall be left in place if arc gouging is the selected removal method and the remaining weld metal shall be removed by grinding. Welders who perform arc gouging shall be SMAW certified. Use of flame cutting equipment to cut the anchor bolts is not allowed. The Contractor shall remove the bolts by sawing the anchor bolt unless another method is approved by the Engineer. The Contractor shall grind smooth the portion of welds remaining after removal of the existing soleplate.

Wherever arc gouging, flame cutting or welding will be used, existing lead paint must first be removed from the area to be affected. Removal of paint shall be accomplished by methods described in the special provision "Localized Paint Removal and Field Painting of Existing Steel" if the paint is being removed prior to abrasive blast cleaning.

The Engineer will inspect the concrete bearing pads before the installation of the elastomeric bearings. Portions of protruding anchor bolts shall be cut off below the surface of the concrete and the void filled in with non-shrink grout. All other cracks, spalls, or deterioration shall be repaired as ordered by the Engineer.

The concrete bearing pads shall have smooth, even, and level surfaces. They shall show no variation from a true plane greater than 1/16 inches over the entire area upon which the elastomeric bearings are to rest. The Contractor shall grind the concrete as required to achieve these requirements.

Before installing the elastomeric bearings, the Contractor shall clean the concrete bearing pad of dirt, grease, oil, or other foreign material.

The Contractor shall install the elastomeric bearings as shown on the plans. The Contractor shall install the elastomeric bearings when the temperature of the ambient air and the bearings is between 40 deg. F to 80 deg. F and has been within this range for at least 2 hours.

Adhesive bonding of the elastomeric bearings to steel and concrete surfaces is not permitted. Welding with the elastomeric bearings in place will not be permitted unless there is more than 1¼" of steel between the weld and the elastomer. In no case shall the elastomer be exposed to temperatures greater

than 400 deg. F. Temperature Indicating Crayons shall be used during field welding to assure that these temperature restrictions are not exceeded.

Welding details, procedures and testing methods shall meet the latest ANSI/AASHTO/AWS D1.5: Bridge Welding Code, unless otherwise noted. Silicone based caulking material approved by the Engineer shall be used to seal between sole plate and bottom flange weld where weld is discontinued. The caulking material shall be compatible with the paint system used for field painting.

The elastomeric bearings shall rest uniformly on the concrete bearing pads when the bearings are under the full dead load of the superstructure. If uniform contact is not present, the Contractor shall fill the gaps beneath the bearing by inserting elastomeric shims that are slightly thinner than the gaps. The Contractor, in the presence of the Engineer, shall measure the gaps to determine the locations and sizes of the shims.

The Contractor shall bond the individual shims to the elastomer portion of the bearing with adhesive applied over the entire shim interface. The surface preparation, application and curing of the adhesive shall comply with the Manufacturer's recommendations. If shims in excess of 1/8 inches are required, bonding of multiple shims is permitted. In areas that vary in thickness, the Contractor shall shim by stepping shims.

After the existing bearing anchor bolts are removed and before painting, the Contractor shall furnish and seal weld ¼ inch steel plates over the slotted holes as shown on the plans.

The Contractor shall provide the Engineer with safe access to the work for inspection purposes.

**Method of Measurement:** This work will be measured for payment by the actual number of elastomeric bearing pads installed and accepted. Test bearings will not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract unit price each for "Bearing Replacement with Elastomeric Bearing Pads" complete, in place and accepted, which price shall include obtaining field measurements of existing bearings and concrete bearing pads, non-shrink grout, furnishing and installing sole plates and load plates, furnishing and installing elastomeric bearings, steel plates over slotted holes, test bearings, shims, adhesive, disposal of the existing bearings, access to bearing locations and all materials, equipment, tools and labor incidental thereto.

Surface preparation and painting of the beveled sole plates, load plates, and the steel plates over slotted holes shall be paid for under the item "Localized Paint Removal and Field Painting of Existing Steel".

**Pay Item**

Bearing Replacement with Elastomeric Bearing Pads

**Pay Unit**

EA.

## APPENDIX – A: Bearing Assembly Field Measurements

Provide all dimensions in inches.

| A | B | C | D |
|---|---|---|---|
|   |   |   |   |

Dimension “B” is the bearing assembly height taken at the centerline of bearing.

### Concrete Bearing Pad Information:

Transverse Dimension (Width) = \_\_\_\_\_

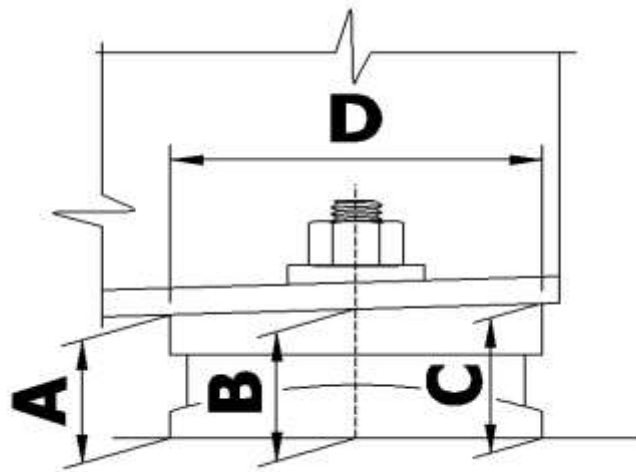
Longitudinal Dimension (Length) = \_\_\_\_\_

Center line of beam to the top right edge of bevel (measured transversely to the beam) = \_\_\_\_\_

Center line of beam to the top left edge of bevel (measured transversely to the beam) = \_\_\_\_\_

Grade of concrete bearing pad to level = \_\_\_\_\_

**Bottom Flange Width** = \_\_\_\_\_



Bridge No. \_\_\_\_\_ Abutment No. \_\_\_\_\_ Pier No. \_\_\_\_\_ Beam No. \_\_\_\_\_

## **ITEM #0522178A – CONSTRUCT CONCRETE KEEPER BLOCKS**

### **Description:**

This item shall consist of constructing a concrete keeper block including the furnishing and placing of reinforcing steel, drilling and grouting, chemical anchoring material, steel keeper plates, welded studs and concrete. This work shall be done as indicated on the plans, in accordance with these specifications, and as directed by the Engineer.

### **Materials:**

The steel keeper plates shall meet the requirements of ASTM A36 steel.

Steel for welded studs shall meet the requirements of Subarticle M.06.02-4.

The chemical anchoring material shall be a resin compound specially formulated to anchor steel bars in holes drilled into concrete for the purpose of resisting tension pull-out. The chemical anchoring material shall be a product listed on the latest Connecticut Department of Transportation Qualified Products List for Chemical Anchors.

Concrete shall be Class PCC03340 meeting the requirements of Section M.03.

Reinforcement shall meet the requirements of ASTM A615, Grade 60.

The steel keeper plates shall be galvanized after fabrication and welding of the studs in accordance with M.06.03.

Certification: A Materials Certificate and a Certified Test Report shall be required for the adhesive bonding material and the steel keeper plates in accordance with Article 1.06.07, certifying the accordance of these materials to the requirements stated herein.

All materials shall be approved by the Engineer before use.

### **Construction Methods:**

The installation of the keeper blocks shall be done after the two adjacent elastomeric bearings have been installed.

Prior to installing any reinforcing steel, the Contractor shall submit the following to the Engineer for approval: type of drill, diameter of bit, method of cleaning holes, and method of placement of the chemical anchoring material. Specifications and recommendations for the aforementioned may be obtained from the manufacturer of the chemical anchoring material. The weight of the drill shall not exceed 20 pounds.

Holes shall be drilled into the concrete at the locations shown on the plans.

Drilling methods shall not cause spalling, cracking, or other damage to the concrete. Those areas damaged by the Contractor shall be repaired in a manner acceptable to the Engineer and at no expense to the State.

The reinforcing steel and chemical anchoring material shall be installed in the holes in accordance with the manufacturer's recommendations.

If existing reinforcing bars are encountered during the drilling operation, the hole shall be relocated to clear the existing reinforcing as directed by the Engineer. Incomplete holes shall be filled with the chemical anchoring material and finished smooth to the contour of the surrounding concrete surface. Care shall be taken not to damage exposed reinforcing bars.

The surface on which the concrete keeper is to be poured shall be intentionally roughened to a depth of 1/4 inch.

Fabrication and placement of reinforcing steel shall meet the requirements of Article 6.02.03.

The installation of welded studs shall be in accordance with the requirements of Article 5.08.03. Mixing, placing, curing, and finishing of the concrete shall be in accordance with Article 6.01.03.

The Contractor shall make test cylinders under the supervision of the representative of the Department. The dimensions, type of cylinder mold and number of cylinders shall be specified by the Engineer.

The Contractor, as directed by the Engineer, shall take adequate precautions to prevent any materials from dropping to the area below, which may result in damage to any existing construction or to adjoining property. Should any damage occur to the structure as a result of the Contractor's operations, the Contractor shall make repairs at their own expense. The repair work shall be approved in advance and shall be of a quality acceptable to the Engineer.

At no time during the Contractor's work will interruption in traffic carried by the structure be permitted solely as a result of constructing the keeper block.

Before fabricating any materials, the Contractor shall submit Shop Drawings to the Engineer for review in accordance with Article 1.05.02-3. These drawings shall include the following: Location and sizes of all reinforcing steel including splice lengths, steel plates and studs, material lists and material designations.

**Method of Measurement:** This work will be measured for payment by the number of concrete keeper blocks, as described above, completed and accepted by the Engineer.

**Basis of Payment:** This work will be paid for at the contract unit price each for "Construct Concrete Keeper Blocks", complete in place, which price shall include furnishing and placing reinforcing steel, steel keeper plates and welded studs, drilling and grouting of reinforcing steel, concrete, and all materials, equipment, tools and labor incidental thereto.

| <b><u>Pay Item</u></b>           | <b><u>Pay Unit</u></b> |
|----------------------------------|------------------------|
| Construct Concrete Keeper Blocks | EA.                    |

## **ITEM #0601107A – HIGH EARLY STRENGTH CONCRETE**

Work under this item shall meet the requirements of Section 6.01 Concrete for Structures as supplemented and amended herein to provide for High Early Strength Concrete.

### **6.01.01 – Description:** Add the following

High early strength concrete shall be used to accelerate the construction of the bridge. The goal of this work is:

- Meet the required compressive strength (both interim and final) in an accelerated manner.
- Reduce the cure time for the concrete
- Provide durable (low permeability) concrete
- Provide low shrinkage properties to reduce cracking in the field

The Contractor shall develop a high early strength concrete mix design for use in the reconstruction of the bridge deck ends, abutment backwalls, bridge and wingwall parapets at deck ends and end blocks or where shown on the plans. This high early strength concrete shall also be used in other cast-in-place concrete work.

### **6.01.02 – Materials:** Add the following:

The high early strength concrete shall meet the requirements of Article M.03.01 and the following criteria:

1. Portland cement shall be Type II, IIA or III meeting the requirements AASHTO M85 or M240, as appropriate.
2. All cement used in the manufacture of the members shall be the same brand, type and color, unless otherwise permitted.
3. Use Portland cement meeting the requirements of AASHTO M85 with compatible admixtures and air entraining agent.
4. Water-cementitious material ratio shall not exceed 0.4 by weight, including water in the admixture solution and based on saturated surface dry condition of aggregates.
5. Use a maximum size coarse aggregate of  $\frac{3}{4}$ ".
6. The amount of entrained air shall be 6.0 +/- 1.5%.
7. High early strength concrete shall achieve a minimum 28-day compressive strength of 6000 psi (Site No. 1 and 2) and 4000 psi (Site No. 3 and 4).
8. The early strength characteristics of the concrete shall be commensurate with the intended construction procedure that is developed by the Contractor.
9. A shrinkage reducing admixture shall be added to the concrete mix according to the manufacturer's recommendation such that there will be no cracks at 14 days in the sample tested in AASHTO T334 (see below). A shrinkage reducing admixture shall be tested by an approved testing lab and meet the requirements of ASTM C494-10 Type S, except that in Table 1 length change shall be measured as: Length Change (percent of control) shall be a minimum of 35% less than that of the control. Table 1 Length Change (increase over control) shall not apply. Shrinkage reducing admixtures shall not contain expansive metallic materials.

10. The maximum allowable total chloride content in concrete shall not exceed 0.1% by weight of cement.

#### *Mix Design Requirements*

Concrete shall be controlled, mixed, and handled as specified in the pertinent portions of Section 6.01 Concrete for Structures, Supplemental Specifications and as indicated below:

The Contractor shall design and submit for approval the proportions and test results for a concrete mix which shall attain the minimum final design compressive strength and the early compressive strength as defined by the approved Assembly Plan and consistent with the approved Quality Control Plan.

The concrete mix design shall have a rapid chloride ion permeability of 2000 Coulombs at not more than 28 days using AASHTO T 277 and the air entrainment shall be targeted at a value of 6.0 percent +/-1.5 percent. Contractor may opt to take multiple tests prior to 28 days which will be considered accepted once the target value of 2,000 coulombs is reached. Testing shall be in accordance with AASHTO T 119 and T 152. Multiple samples shall be tested using the intended curing methods in order to establish the required cure times for the mix.

Should a change in sources of material be made, a new mix design shall be established and approved prior to incorporating the new material. When unsatisfactory results or other conditions make it necessary, the Department will require a new mix design.

The concrete mix design shall be submitted to the Department for review and approval. The Department shall be notified at least 48 hours prior to the test batching and shall be present to witness the testing.

All tests necessary to demonstrate the adequacy of the concrete mix shall be performed by the Contractor, witnessed by the Department, including slump, air content, temperature, initial set and final set (AASHTO T197). Compressive strength tests shall be determined on field cured cylinders (6" X 12" cylinders) at 9 hours, 12 hours, 15 hours, 18 hours, 24 hours, 30 hours, 36 hours, 42 hours, 2 days and 3 days, and standard cured cylinders at 7 days and 28 days. Additionally, the Contractor shall arrange for a confined shrinkage test as outlined in the AASHTO T334 - Practice for Estimating the Crack Tendency of Concrete which shall be performed by an AASHTO accredited laboratory. The results of these tests (documenting zero cracks at 14 days) shall be submitted to the Department.

#### *Test Batching*

In addition, a trial batching shall be done a minimum of (90) ninety days before the intended date of the initial deck end placement. The Contractor will be required to demonstrate proper mix design, batching, placement, finishing and curing of the high early strength concrete. The trial batching shall simulate the actual job conditions in all respects including plant conditions, transit equipment, travel conditions, admixtures, forming, the use of bonding compounds, restraint of adjacent concrete, placement equipment, and personnel.

The trial shall also demonstrate the ability of the concrete to accept the installation of the membrane waterproofing system that is to be used. A representative portion of the trial concrete shall be coated with the membrane waterproofing in accordance with the specifications for the waterproofing. The timing of the installation of the waterproofing on the trial concrete shall be commensurate with the intended construction procedure and schedule that is developed by the Contractor. The Contractor shall demonstrate that the waterproofing meets all the requirements of the specifications.

The details for the trial placement configuration are shown in Figure 1. Acceptance criteria for the trial placement shall be as follows:

- The trial placement concrete shall not exhibit cracking or separation from the test panel in excess of 0.016 inches wide
- There shall be no more than one transverse crack in excess of 0.010 inches wide in the 10-foot-long pour.
- The evaluation of the trial batches shall take place 14 days after placement.

If the trial batches fail these criteria, the Contractor will be required to submit a corrective action plan on how repairs of these crack sizes will be performed. The Department may require the Contractor to conduct more trial batches and trial placements. The costs of trial batches and the removal of trial batches concrete from the job site is incidental to the work and will not be measured for payment. The requirement for multiple test batches shall not be cause for a time extension.

The final accepted trial placement testing shall be used to establish the final acceptance testing protocol for the field placements.

**6.01.03 Construction Methods:** Add the following:

The Contractor shall engage an AASHTO accredited laboratory to provide testing facilities which are qualified laboratories under the NETTCP program to perform all Quality Control field testing. All personnel performing tests shall be qualified NETTCP Concrete Technicians and certified ACI Laboratory and Concrete Strength Technicians. Anytime the Contractor moves the laboratory, all associated equipment shall be recalibrated. This requirement is intended to minimize the movement of test cylinders.

The Contractor is required to perform initial set and final set tests (AASHTO T197) in addition to slump, air content and temperature on concrete from each concrete truck used in the placing of this High Early Strength Concrete. Field cured cylinders (6" X 12" cylinders) will be made from the first and last concrete trucks. A set of three (3) field- cured cylinders shall be made for each informational test associated with early structural loading. The Contractor is advised to fabricate adequate sets of cylinders to allow multiple tests to verify field concrete strength. The Department shall be allowed to witness the test and comment on all the tests performed by the Contractor. The Contractor shall not open the roadway to traffic until the final strength has been met and when the Department has directed that the roadway can be opened to traffic.

All testing and equipment shall meet the requirements of AASHTO T 22, and the making and curing of concrete cylinders shall meet the requirements of AASHTO T 23. All costs associated with the on-site mobile testing facilities, personnel and field testing, equipment calibration and verification to demonstrate the field concrete strength shall be incidental to the work.

Acceptance tests will be performed by the Department on standard cured cylinders at 7 days and 28 days. Cylinder breaks at 3 days and 7 days must be at least 10% above the approved trial batch results. The Contractor will be notified of any verification tests that do not meet these requirements and will be required to develop a contingency corrective action plan if final strength is not achieved. Concrete will be accepted, and traffic shall be allowed on the concrete only if a strength of 4000 psi is achieved on Site No. 1 and 2 and 3000 psi on Site No. 3 and 4.

#### *Curing Methods*

The concrete curing methods shall be developed by the Contractor as part of the Quality Control Plan. The curing methods used in the production placements shall be the same as the curing methods used for the trial placement.

#### *High Early Strength Concrete Crack Inspection*

The Contractor shall inspect the finished high early strength concrete surface for cracks. Inspection of the deck for cracking shall be completed prior to the preparation of the deck for placement of the membrane waterproofing system.

The Contractor shall document the location and frequency of cracks on the deck end pours (number of cracks per square foot). Cracks greater than 0.016 inches in width shall be repaired as required by the membrane waterproofing manufacturer

**Basis of Payment:** Add the following

The work completed under this Item will be paid for at the contract price per actual number of cubic yards of high early strength concrete that is measured complete in place. Payment under this Item includes full compensation for all testing and approval of the mix design.

#### **Pay Item**

#### **Pay Unit**

High Early Strength Concrete

C.Y.

## **ITEM #0601272A – VARIABLE QUANTITY FULL DEPTH PATCH (HIGH EARLY STRENGTH CONCRETE)**

**Description:** This item is a Variable Quantity item and shall include all the work specified.

This item shall consist of saw cutting concrete, removal of all deteriorated concrete for the full depth of the deck slab, and reconstructing the slab with new concrete, where directed by the Engineer and as hereinafter specified.

Work under this item shall also include the providing of safe access to the structure for the delineation of the repair locations and review of the performed work. The Contractor shall not perform any repair work without prior approval of the Engineer for location, limits and types of repairs.

**Materials:** The materials shall meet the following requirements:

1. High Early Strength Concrete – The high early strength concrete shall meet one of the following:
  - A. The Contractor shall design and submit to the Engineer for approval a high early strength concrete mix. This mix shall be air-entrained, and shall be composed of Portland cement, fine and coarse aggregates, approved admixtures and additives, and water. The mix shall contain between 4% and 7% entrained air, and shall attain a 6-hour compressive strength of 2,500 psi. Additionally, the mix shall contain shrinkage compensating additives such that there will be no separation of the patched area from the parent concrete. This shrinkage-compensating additive shall be utilized so as to produce expansion in the high early strength concrete of no more than 0.3%.
  - B. In lieu of the above high early strength concrete mix, the Contractor may propose the use of a proprietary type mix that will meet the same physical requirements as those stated above. A mix design shall be submitted for this material, stating the percentage of each component to be utilized.
2. Regardless of the type of high early strength concrete proposed by the Contractor, substantive data that demonstrates the ability of the material to meet the specification requirements shall be submitted with the proposed mix design at least 2 weeks prior to its use.

**Construction Methods:** Construction methods shall meet the following requirements:

1. Inspection of the Structural Slab: Before any existing concrete is removed from the structural slab, the Contractor will provide the Engineer clear access to the bridge deck. During this time, the Engineer will perform an inspection of the structural slab and designate areas where concrete removal will be required. Due to the nature of the operations, the inspection can be performed only after some existing materials, notably overlays and waterproofing systems, have first been removed from the structural slab. It shall be the responsibility of the Contractor to arrange the construction schedule so that the required operations may be performed without causing delay to the work.

No operations will be performed by the Engineer until after the following construction work has been completed:

- a) The existing bituminous overlay or concrete wearing course, if present, has been removed.
- b) The existing waterproofing system, if present, has been removed.

The removal of these materials will be paid for under other applicable items.

It shall be the responsibility of the Contractor to inform the Engineer, in writing, of the date that a structure will be available for inspection operations. Notification shall be given to the Engineer at least 7 days prior to the date that the area in question will be in a condition acceptable to the Engineer.

The Contractor is hereby informed that the following time period will be necessary to perform the required inspection operations:

One (1) working day with suitable weather conditions per each 6,000 square feet, or portion thereof, of structural slab area.

The Contractor will not be allowed to do any further work to the structural slab, until all necessary inspection operations have been performed, unless given permission by the Engineer. The Contractor shall include any costs related to the allowance for this inspection in the general cost of the work.

2. Removal of Deteriorated Concrete: All deteriorated concrete shall be removed within the limits shown on the plans and where ordered by the Engineer. The lateral limits of each area to be repaired will be delineated by the Engineer and suitably marked. Where several areas to be repaired are very close together, the Engineer may combine these individual patches into a large area. The outlines of each such area shall first be cut to a depth of 1/2 inch with an approved power-saw capable of making straight cuts. In the event that reinforcing steel is encountered within the upper 1/2-inch depth during sawing operations, the depth of saw-cut shall immediately be adjusted to a shallower depth so as not to damage the steel bars. If so directed by the Engineer, saw cutting shall again be carried down to the 1/2 inch depth at other locations of repair provided reinforcing steel is not again encountered. Where over-breakage occurs resulting in a featheredge, the featheredge be squared up to a vertical edge in an approved manner. Where sawing is impractical, the areas shall be outlined by chisel or other approved means.

The removal of concrete shall be by hydro-demolition or pneumatic hammer methods and shall be governed by the requirements set forth in the special provision Item "Variable Quantity Partial Depth Patch" and as directed by the Engineer.

The Contractor shall take adequate measures to prevent concrete debris from falling to any area below the structure and onto adjacent roadway lanes. All debris shall be promptly cleaned up and removed from the site. All material removed shall be satisfactorily disposed of by the Contractor.

Where existing reinforcing steel is damaged or has insufficient cover as determined by the Engineer, it shall be cut out and replaced with new reinforcing steel the same size, with a minimum length for lap splices as indicated on the plans or as directed by the Engineer.

3. Surface Preparation: Sound reinforcing steel which is in the proper position in the slab shall be left in place and cleaned of all concrete. The smaller fragments shall be removed with hand tools or by water blast cleaning.

The newly exposed reinforcing steel and concrete faces shall be cleaned of loose or powder-like rust, oil solvent, grease, dirt, dust, bitumen, loose particles, and foreign matter just prior to patching.

Existing concrete surfaces against which the new patch will be placed shall be dampened. All free water shall be removed from the surface.

Forms shall meet to the pertinent requirements of Subarticle 6.01.03-II-1.

The cleaned concrete surface area to receive patching material shall be wetted for a 1 hour period immediately prior to placement of the concrete patch. Any standing water shall be blown out with compressed air prior to application of binding grout and patch material.

After wetting of the deck patch area to receive patching, and removal of the standing water, cement binding grout shall be scrubbed into the concrete patch bonding surface with stiff bristled brushes. All bonding surfaces in the patch area shall receive a coating of bonding grout within a time period not to exceed 5 minutes prior to placement of the concrete patch material.

4. Mixing, Placing, and Finishing: Mixing and placing concrete shall be done in accordance with the applicable portions of Article 6.01.03. Mixing and placing shall not be executed unless the ambient temperature is above 40 °F and rising.

The concrete mix shall be properly placed to ensure complete contact around all reinforcing steel and against existing concrete at patch edges and compacted to a level slightly above the surrounding deck surface. Vibrators of the appropriate size shall be used for all consolidation of the concrete, regardless of the size of the patch area, with no hand tamping or rodding allowed. Concrete may be moved horizontally with the aid of hand tools, but not with the use of vibrators (excess vibration shall be avoided).

Vibrating plates or vibrating screed shall be used on the surface of all patches for strike off and consolidation. After the concrete has been spread evenly and compacted to a level slightly above the adjacent concrete surface, the vibrating plate or screed shall be drawn over the surface at a uniform speed without stopping, in order to finish the surface smooth and even with adjacent concrete. The surface shall be float finished. Finishing operations shall be completed before initial set takes place.

5. Curing: Immediately after finishing of the patch area, a sheet of 4 mil polyethylene shall be placed over the repair area, in conjunction with insulating curing material. This material shall be a minimum of 2-inch thick closed cell extruded polystyrene insulation board that meets the requirements of ASTM C578. It shall have a minimum certified R-value of 10. The insulating material shall extend a minimum of 12 inches beyond the limits of the patch area, and shall be kept in intimate contact with the surrounding payment surface to prevent lifting of the material. It shall be weighted down with sandbags that weight at least 15 pounds each. The sandbags shall be placed a minimum of 2 feet on center around the patch area.

Cured patches, having a hollow sound when chain dragged or tapped (indicating delamination), shall be replaced by the Contractor at its expense until a patch acceptable to the Engineer is in place.

6. Tolerances in Finished Patch Surfaces: The surface profile of the patched area shall not vary more than 1/8 inch in a distance of 10 feet, when a 10 foot long straightedge is placed on the surface at any angle relative to the centerline of the bridge. Humps in the patch that exceed the 1/8 inch tolerance shall be ground down by approved machinery. Sags or depressions in the surface of the patch area that exceed 1/8 inch tolerance as determined by the Engineer shall be repaired by removal of the concrete in the depression to a depth of 1 inch and repaired in the previously described manner.

7. Testing: The Contractor shall form, cure and test all concrete test cylinders under supervision of a representative of the Department. The dimensions, type of cylinder mold, number of cylinders, and method of curing shall be as directed by the Engineer.

The Contractor shall provide a portable compressive testing machine, on Site, for the purpose of testing all compressive strength cylinders. All testing shall be in accordance with the requirements of ASTM C39. NOTE: This compressive testing machine must be calibrated in accordance with the provisions of Section 5, ASTM C39.

8. Time Schedule: Traffic will not be allowed on any areas where the Contractor has placed and finished concrete until the material has properly cured as specified, and has developed the required strength of 2,500 psi as determined by the compressive strength test, or until the Engineer authorizes its opening to traffic.

All work shall proceed as required by the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications elsewhere within the Contract.

**Method of Measurement:** This work will be measured for payment by the actual volume in cubic yards of replacement concrete, complete and accepted. No deduction will be made for the volume of reinforcing steel. Removal of concrete will not be measured for payment.

**Basis of Payment:** This work will be paid for at the Contract unit price per cubic yard for "Variable Quantity Full Depth Patch (High Early Strength Concrete)" complete in place, which

price shall include sawcutting and removal of concrete, surface preparation, concrete replacement, all equipment, tools, labor and work incidental thereto.

The Contractor will be paid the guaranteed minimum quantity for this Variable Quantity item unless the final quantity authorized and accepted by the Engineer is greater than the guaranteed minimum estimated quantity or the work is deleted from the contract in its entirety in accordance with Article 1.09.05.

For quantities in excess of the guaranteed minimum quantity but less than the estimated maximum quantity, the Contractor will receive payments for the actual quantities authorized and accepted by the Engineer using the unit price bid.

For quantities exceeding the estimated maximum quantity, the Contractor shall request approval from the Engineer prior to proceeding with the additional work. Payment for quantities authorized by the Engineer in excess of the estimated maximum quantity will be paid in accordance with the special provision for Articles 1.04.02 and 1.04.03 of the Standard Specifications Form 818 found in this Contract.

**Pay Item**

Variable Quantity Full Depth Patch (High Early  
Strength Concrete)

**Pay Unit**

c.y.

## **ITEM #0601273A – VARIABLE QUANTITY PARTIAL DEPTH PATCH**

**Description:** This item is a Variable Quantity item and shall include all the work specified.

Work under this item shall consist of the removal of spalled, delaminated or otherwise deteriorated concrete from existing bridge decks, approach slabs and headers by pneumatic hammers or hydro-demolition methods, and replacement with fast setting patching material as shown on the plans, as directed by the Engineer and specified herein.

Where ordered by the Engineer, work under this item shall also include inspecting the underside of the deck concrete for popouts caused by the removal of deteriorated concrete.

Work under this item shall also include the furnishing and installation of wire ties for reinforcing bar and vertical supports on inadequately supported or vibrating reinforcing steel within deck patch areas, as ordered by the Engineer.

**Materials:** The materials shall meet the following requirements:

- 1) Patching Material: The patching material shall be a concrete composed of a quick setting cement, fine aggregate, coarse aggregate and water. This concrete shall harden within 40 minutes, and develop minimum compressive strengths of 1,000 psi within 1 hour after set and 3,000 psi within 3 days.

The Contractor shall design and submit a quick setting mix to the Engineer for acceptance. Said mix design shall meet the strength requirements noted above and shall attain a minimum of 2500 psi prior to allowing traffic on patched surfaces. The mix proportions and method of application shall be in accordance with the manufacturer's recommendations. Sources of supply of all the materials shall be clearly indicated.

Fine aggregate shall meet the requirements of Subarticle M.03.01-2.

The coarse aggregate shall meet the requirements of Subarticle M.03.01-1. The required grading shall be obtained by using 100% of No. 8 size coarse aggregate. Grading of the aggregate shall meet the gradation for No. 8 stone in Article M.01.02.

Water shall meet the requirements of Subarticle M.03.01-4.

The quick setting cement shall be one of the following materials:

MasterEmaco T 415

BASF

23700 Chagrin Blvd.

Beachwood, OH 44122

216-839-7016

[www.master-builders-solutions.basf.us](http://www.master-builders-solutions.basf.us)

Perma Patch

Dayton Superior Corporation

7130 Ambassador Dr.

Allentown, PA 18106

800-745-3707

[www.daytonsuperior.com](http://www.daytonsuperior.com)

Rapid Set DOT Cement

CTS Cement Manufacturing Corporation  
12442 Knott Street  
Garden Grove, CA 92841  
800-929-3030 ext. 188  
[www.ctscement.com](http://www.ctscement.com)

Speed Crete Green Line

Tamms Industries  
730 Casey Ave.  
Wilkes-Barre, PA 18702  
800-218-2667  
[www.dpproducts.com/products/tamms.html](http://www.dpproducts.com/products/tamms.html)

Fastcrete

Silpro Corporation  
2 New England Way  
Ayer, MA 01432  
800-343-1501  
[www.silpro.com/products/fastcrete.shtml](http://www.silpro.com/products/fastcrete.shtml)

Gypsum Based Materials will not be allowed.

**Construction Methods:**

Removal of concrete for partial depth patch will be performed by one of two methods: Hammer Demolition or Hydro-demolition. Prior to beginning any work, the Contractor shall provide submittals outlining intended method, as defined herein.

- 1) Inspection of the Deck: Before any existing concrete is removed, the Contractor shall provide the Engineer clear access to the bridge deck. During this time, the Engineer will perform an inspection of the structural slab and will designate areas where concrete removal shall be required. It shall be the responsibility of the Contractor to arrange the construction schedule so that the required operations may be performed without causing delay to the work.

No operations will be performed by the Engineer until after the following construction work has been completed:

- a) The existing bituminous overlay or concrete wearing course, if present, has been removed.
- b) The existing waterproofing system, if present, has been removed.

Note: The removal of this material will be paid for under other applicable items.

It shall be the responsibility of the Contractor to inform the Engineer, in writing, of the date that a structure will be available for inspection operations. Notification shall be given to the Engineer at least 7 days prior to the date that the area in question will be in a condition acceptable to the Engineer.

The Contractor is hereby informed that the following time period will be necessary to perform the required inspection operations:

One working day with suitable weather conditions per each six thousand (6,000) square feet, or portion thereof, of deck area.

The Contractor will not be allowed to do any further work to the structure, until all necessary inspection operations have been performed, unless given permission by the Engineer.

The Contractor shall include any costs related to the allowance for this inspection in the general cost of the work.

- 2) Hammer Demolition: The maximum allowable noise level caused by equipment used for the removal of deck concrete shall not exceed 90 decibels on the "A" weighted scale, as measured at the nearest residence or occupied building. The Contractor shall demonstrate, to the satisfaction of the Engineer, that the equipment will meet this requirement before the use of such equipment will be allowed.

The weight of pneumatic hammers when used shall not exceed 30 pounds for concrete removal above the top reinforcing steel nor 15 pounds for concrete removal below the top reinforcing steel.

- 3) Hydro-Demolition Water and Equipment: All hydro-demolition equipment shall be capable of selectively removing spalled, delaminated or otherwise deteriorated concrete and cleaning the existing reinforcing steel of all rust and corrosion products by use of high-velocity water jets acting under continuous automatic control.

The hydro-demolition equipment shall consist of filtering and pumping units operating in conjunction with a remote-controlled robotics device.

All hydro-demolition equipment shall be equipped with an angled and rotating water nozzle to prevent interference of the existing reinforcing steel with the removal of concrete.

The maximum allowable noise level caused by equipment used for the removal of deck concrete shall not exceed ninety (90) decibels on the "A" weighted scale, as measured at the nearest residence or occupied building. The Contractor shall demonstrate, to the satisfaction of the Engineer, that the equipment will meet this requirement before the use of such equipment will be allowed.

The make and model numbers of hydro-demolition equipment shall be submitted for acceptance by the Engineer. No hydro-demolition work shall be initiated until this acceptance is granted.

The Contractor shall provide structurally adequate shields approved by the Engineer for protection of adjacent traffic lanes in the vicinity of the removal and cleanup operations.

Water used for the hydro-demolition shall be potable.

The Contractor is advised that the withdrawal of more than 50,000 gallons of water per day from a single source other than from a municipal water system shall require a diversion

permit issued by the Department of Energy and Environmental Protection, Water Resources Unit, in accordance with the Connecticut Water Diversion Policy Act PA 84-402, CGS Sections 22a-365 through 22a-378.

- 4) Hydro-Demolition Drainage Runoff Control: At least 2 weeks prior to the planned initiation of hydro-demolition operations, the Contractor shall submit to the Engineer for acceptance a comprehensive plan for the hydro-demolition operation. This Hydro-Demolition Plan shall include the following:
- a) Equipment
  - b) Containment
  - c) Filtration
  - d) Location of trial areas
  - e) Disposal of hydro-demolition runoff and concrete debris in accordance with these specifications

The Plan shall ensure that all concrete debris and particulate matter will be removed from hydro-demolition runoff water prior to its release to the environment.

The Plan shall include provision for the concurrent vacuuming of all runoff water at the immediate vicinity of the hydro-demolition operation. Runoff water shall be completely contained and vacuumed into a suitably sized water tight mobile tank for transport to a disposal site sedimentation basin acceptable to the Engineer.

Hydro-demolition operations shall proceed only with the simultaneous operation of a runoff water vacuum pickup in the immediate area of the hydro-demolition operation. Runoff water shall not be allowed to flow across adjacent travel lanes, across bridge joints nor through any existing bridge drainage system.

The size and location of the disposal site sedimentation basin shall be detailed in the Hydro-Demolition Plan. The sedimentation basin shall be properly sized so that uncontrolled overflow does not occur. At the conclusion of hydro-demolition operations, the sedimentation basin and all concrete debris shall be removed and the area restored to its original condition.

The Plan shall additionally meet all applicable requirements of Section 1.10 Environmental Compliance of the Standard Specifications.

The acceptance by the Engineer of the Hydro-Demolition Plan shall in no way relieve the Contractor of any responsibility for its safe and effective performance.

- 5) Calibration and Testing of Hydro-Demolition Equipment: A trial area will be designated by the Engineer to demonstrate that the equipment, personnel and methods of operation are capable of producing satisfactory results. The trial area will consist of 2 patches, each of approximately 20 square feet, one area of deteriorated or defective concrete and one area of "sound" concrete as determined by the Engineer.

Area of sound concrete is defined as: An area free from chemical defects, delamination, spalling, cracks, etc.

In the “sound area of concrete,” the equipment shall be programmed to remove concrete to a depth 1 inch  $\pm$  1/4 inch below the top reinforcing steel mat.

After completion of the sound concrete test area, the equipment shall be located over the deteriorated or defective concrete and, using the same parameters as for sound concrete removal, shall remove all deteriorated or defective concrete. If a satisfactory result is obtained, these parameters may be used as a basis for production removal.

If, after calibrating the hydro-demolition equipment and beginning removal operations in a particular zone or area, insufficient removal of concrete is observed, in the opinion of the Engineer, the Contractor shall recalibrate the hydro-demolition equipment for that zone or area to the satisfaction of the Engineer.

- 6) Removal of Deteriorated Concrete: All deteriorated concrete designated for removal under this construction item shall be removed within the limits shown on the plans and where ordered by the Engineer. The lateral limits of each area to be repaired will be delineated by the Engineer and suitably marked. Where several areas to be repaired are very close together, the Engineer may combine these individual patches into a large area. The outlines of each such area shall first be cut to a depth of 1/2 inch with a powersaw capable of making straight cuts prior to pneumatic demolition. In the event that reinforcing steel is encountered within the upper 1/2 inch depth during sawing operations, the depth of saw-cut shall immediately be adjusted to a shallower depth so as not to damage the steel bars. If so directed by the Engineer, saw cutting shall again be carried down to the 1/2 inch depth at other locations of repair provided reinforcing steel is not again encountered. Where over-breakage occurs resulting in a featheredge, the featheredge shall be squared up to a vertical edge in an acceptable manner. Where sawing is impractical, the area shall be outlined by chisel or other acceptable means.

All deteriorated concrete shall be removed by pneumatic hammers or hydro-demolition methods.

The depth of concrete removal shall be at least 1 inch below the top reinforcing steel mat but shall be such as to include all spalled, delaminated, or otherwise deteriorated concrete. The Engineer will be the sole determiner of what constitutes deteriorated concrete, using sounding methods or other evaluation measures.

Within 1 hour following the initiation of a concrete removal operation in any patch area, all loose concrete debris shall be removed, followed by water flushing of the existing concrete bonding surface to completely remove all traces of concrete debris and cement residue so that rebonding to the surface of the remaining sound concrete will be prevented. If it is not convenient to clean and flush the patch area within this time frame, all steel reinforcing and concrete bonding surfaces shall be cleaned subsequently by high pressure water blasting at

a nozzle pressure not less than 3,000 psi with a sufficient volume to completely remove all rebonded debris and laitance.

Where the existing reinforcing steel is damaged or corroded, it shall be cut out and replaced with new reinforcing steel of the same size. Any sound reinforcing steel damaged during the concrete removal operations, shall be repaired or replaced by the Contractor at its expense, as directed by the Engineer. New steel shall be attached beneath or beside existing steel with a minimum splice length as indicated on the plans, or as directed by the Engineer. The concrete shall be removed to a minimum depth of 1 inch below the new steel.

- 7) Surface Preparation: Sound reinforcing steel which is in the proper position in the slab shall be left in place and cleaned of all concrete, the smaller fragments to be removed with hand tools in patch areas where pneumatic hammers were used.

Reinforcing bar wire ties and vertical supports shall be installed on inadequately supported or vibrating reinforcing steel, as directed by the Engineer.

The concrete surface and reinforcing steel to receive patching material shall be either sandblasted or water blasted, followed by air blasting in order to remove all loose particles and dust. All blasting operations shall be performed using techniques acceptable to the Engineer, taking care to protect all pedestrians, traffic, and adjacent property. All compressed air sources shall have properly sized and designed oil separators attached and functional to allow delivered air at the nozzle to be oil-free. The patch area shall be cleaned of all additional loose or powder-like rust, oil, solvent, grease, dirt, dust, bitumen, loose particles, and foreign matter just prior to patching.

If the patch area was not cleaned and flushed with clean water immediately following hydro-demolition, or if run-off from a nearby hydro-demolition operation was allowed to travel through the previously cleaned and flushed patch surface, all affected concrete and steel reinforcing bonding surfaces shall be water blast cleaned at a nozzle pressure not less than 3,000 psi as directed by the Engineer, to assure that all remaining bond inhibiting laitance is completely removed.

The entire concrete surface to be patched shall be dampened. All excess free water shall be removed from the patch area.

- 8) Mixing, Placing, and Finishing: Unless a winter operations plan has been submitted to the Engineer by the Contractor, mixing and placing concrete shall only take place when the ambient temperature is above 35°F or per manufacturer's recommendations, whichever is higher. All mixing shall be accomplished by means of a standard drum-type portable mixer. A continuous type mobile mixer may be used if permitted by the Engineer. The Contractor shall calibrate the mobile mixer under supervision of the Engineer. Calibration shall be in accordance with the applicable sections of ASTM method C685. The total mix shall be limited to the quantity that can be mixed and placed in 15 minutes. The concrete

mix shall be spread evenly and compacted to a level slightly above the pavement surface. Vibration, spading or rodding shall be used to thoroughly compact concrete and fill the entire patch area. Where practical, internal vibration shall be used in cases where concrete has been removed below the reinforcing steel. Hand tamping shall be used to consolidate concrete in smaller patches, including popouts.

Vibrating plates or vibrating screeds shall be used on the surface of all patches for strike off and consolidation. After the concrete has been spread evenly and compacted to a level slightly above the pavement surface, the vibrating plate or screed shall be drawn over the surface at a uniform speed without stopping, in order to finish the surface smooth and even with adjacent concrete.

The surface shall be float finished.

Finishing operations shall be completed before initial set takes place.

Cured patches, having a hollow sound when chain dragged or tapped, (indicating delamination), shall be replaced by the Contractor at its expense until a patch acceptable to the Engineer is in place.

- 9) Tolerances in Finished Patched Surfaces: The surface profile of the patched area shall not vary more than 1/8 inch in a distance of 10 feet, when a 10 foot long straightedge is placed on the surface at any angle relative to the centerline of the bridge. Humps in the patch that exceed the 1/8 inch tolerance shall be ground down by acceptable machinery. Sags or depressions in the surface of the patch area that exceed the 1/8 inch tolerance shall be repaired by removal of the concrete in the depression over an area determined by the Engineer to a depth of 1 inch and repaired in the previously described manner.
- 10) Underside of Bridge Deck Treatment: The Engineer will examine the underside of the bridge deck for popouts caused by the removal of deteriorated concrete. The exposed reinforcing steel shall be coated with zinc rich coating where ordered by the Engineer. The exposed reinforcing steel, if any, which is to receive the zinc rich coating material shall be cleaned of all loose or powder-like rust, oil, dust, dirt, loose particles, and other inhibiting matter just prior to coating.

If the popouts extend beyond the bottom layer of reinforcing steel, the popouts shall be repaired as ordered by the Engineer.

- 11) Test Cylinders: The Contractor shall make and perform compressive strength tests on representative cylinders under the supervision of the Engineer in accordance with ACI requirements. The dimensions, type of cylinder mold and number of cylinders will be specified by the Engineer. Traffic shall not be permitted on patched surfaces until the patch material attains a strength of 2500 psi, as determined by breaks of the test cylinders.

A portable compression testing machine shall be provided by the Contractor and available on site for cylinder testing. All testing and equipment shall meet ASTM C39.

Note: The compression machine must be calibrated in accordance with the provisions of Section 5, ASTM C39.

- 12) Time Schedule: Work under this item begun on any specific bridge during a construction season shall be completed, at least, to include this item, membrane waterproofing and placing of first course of wearing surface as soon as possible and specifically before the beginning of the construction season's winter shutdown.

All work shall proceed as required by the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications elsewhere within the Contract.

**Method of Measurement:** This work will be measured for payment by the actual volume in cubic feet of patching material used in acceptable concrete deck patches, except where the Engineer determines that the Contractor has unnecessarily removed sound concrete. Where sound concrete has been unnecessarily removed, the replacement concrete will not be measured for payment. Providing safe access for delineation and inspection of the performed repairs will not be measured for payment.

Replacement of deteriorated rebar and repair of rebar at pop outs, if required, will be measured for payment under other Contract items.

**Basis of Payment:** This work will be paid for at the Contract unit price per cubic foot of deck concrete repaired under "Variable Quantity Partial Depth Patch," complete and accepted in place, which price shall include removal of deteriorated concrete, surface preparation of patch areas, concrete replacement, the furnishing and installation of reinforcing bar wire ties and vertical supports for inadequately supported existing reinforcing steel, inspection access, all materials, equipment, including the portable compression testing machine required for the testing of the repair material, tools, labor and work incidental thereto.

The Contractor will be paid the guaranteed minimum quantity for this Variable Quantity item unless the final quantity authorized and accepted by the Engineer is greater than the guaranteed minimum estimated quantity or the work is deleted from the contract in its entirety in accordance with Article 1.09.05.

For quantities in excess of the guaranteed minimum quantity but less than the estimated maximum quantity, the Contractor will receive payments for the actual quantities authorized and accepted by the Engineer using the unit price bid.

For quantities exceeding the estimated maximum quantity, the Contractor shall request approval from the Engineer prior to proceeding with the additional work. Payment for quantities authorized by the Engineer in excess of the estimated maximum quantity will be paid in

accordance with the special provision for Articles 1.04.02 and 1.04.03 of the Standard Specifications Form 818 found in this Contract.

Replacement of deteriorated rebar, if required, will be paid for under the item “Variable Quantity Deformed Steel Bars”

Zinc rich coating of exposed rebar at the underside of the deck, if required, will be paid for under the item “Clean and Coat Exposed Reinforcing Steel.”

| <b><u>Pay Item</u></b>                | <b><u>Pay Unit</u></b> |
|---------------------------------------|------------------------|
| Variable Quantity Partial Depth Patch | c.f.                   |

## **ITEM #0601274A – VARIABLE QUANTITY SURFACE REPAIR CONCRETE**

Work under this item shall meet the requirements of Section 6.01, amended as follows:

### **6.01.01 - Description:** *Replace the Article with the following:*

This item is a Variable Quantity item and shall include all the work specified below.

Work under this item shall consist of repairing deteriorated areas of concrete with surface repair concrete. The concrete shall be Class PCC04481, composed of Portland cement, pozzolans, fine and coarse aggregate, admixtures and water, prepared and constructed in accordance with these specifications, at the locations and of the form dimensions shown on the plans, or as directed by the Engineer. The use of concrete from dry batch or central mixed plants is permitted.

### **6.01.03 – Construction Methods:**

*Delete Subarticle 1.*

### **6.01.05 - Basis of Payment:** *Replace Subarticle 3 with the following:*

**3. Concrete Used For Surface Repairs:** This work will be paid for at the Contract unit price per cubic foot less any adjustments, complete in place, for measured quantities up to and including the Estimated Maximum Quantity. The Contract unit price shall include saw cutting, removing concrete, sandblasting, cleaning, forming, placing, curing, stripping, and furnishing new surfaces, and all materials, equipment, tools, labor and clean-up incidental thereto.

The Contractor will be paid the Guaranteed Minimum Quantity for this Variable Quantity item unless the final measured quantity authorized and accepted by the Engineer is greater than the guaranteed minimum estimated quantity or the work is deleted from the contract in its entirety in accordance with Article 1.09.05. The Guaranteed Minimum Quantity is indicated on the Bid Proposal Form.

For measured quantities in excess of the Guaranteed Minimum Quantity, but less than or equal to the Estimated Maximum Quantity, the Contractor will be paid for the actual measured quantity authorized and accepted by the Engineer, at the Contract unit price. The Estimated Maximum Quantity is indicated on the Bid Proposal Form.

For quantities exceeding the Estimated Maximum Quantity, the Contractor shall request approval from the Engineer prior to proceeding with the additional work. Payment for quantities authorized by the Engineer in excess of the Estimated Maximum Quantity will be paid in accordance with the special provision for Articles 1.04.02 and 1.04.03 of Form 818.

#### **Pay Item**

Variable Quantity Surface Repair Concrete

#### **Pay Unit**

cf.

## **ITEM #0601323A – MODIFY CONCRETE BEARING PAD**

**Description:** Work under this item shall consist of modifying a concrete bearing pad to accommodate a new elastomeric bearing assembly at the proposed elevations. This includes cutting/removal of existing concrete bearing pad and cutting reinforcing bars, roughening of existing concrete and furnishing and placing new concrete to the elevations shown in the plans. The Contractor shall perform work as indicated on the plans, in accordance with these specifications and as directed by the Engineer.

**Materials:** The materials shall meet the following requirements:

1. Non shrink grout shall meet the requirements of Article M.03.05
2. The Contractor shall submit to the Engineer a grout mix design for approval which will provide a 28-day strength of 4000 psi. The Contractor shall further provide a certificate stating that the mix submitted meets requirements.
3. Column and Cap Concrete shall be Class PCC04460 conforming to Section M.03.

In lieu of a Contractor designed grout mix, the Contractor may at no additional cost to the State, submit for approval one of the following bagged repair mortars:

### **MasterEmaco T415 Rapid Strength Repair Mortar**

Manufactured by: BASF Building Systems  
889 Valley Park Drive  
Shakopee, MN 55379

### **MasterEmaco T430 Rapid Strength Repair Mortar**

Manufactured by: BASF Building Systems  
889 Valley Park Drive  
Shakopee, MN 55379

### **Rapid Set DOT Repair Mortar**

Manufactured by: CTS Cement Manufacturing Corporation  
11065 Knott Avenue, Suite A  
Cypress, CA 90630

### **Five Star Structural Concrete V/O**

Manufactured by: Five Star Products Inc.  
750 Commerce Drive  
Fairfield, CT 06825

All materials shall be approved by the Engineer before use.

**Construction Methods:** Before construction, the Contractor shall submit Shop Drawings to the Engineer for review in accordance with Article 1.05.02. Additionally, the Contractor shall verify existing elevations and determine the thickness of the new concrete pads based on as-built elevations and the desired proposed elevations shown in the plans. The field measurements and the thicknesses of the new/modified concrete pads shall be shown in the shop drawings. Grout pads resulting in a thickness of 4 inches or greater shall be reinforced as shown in the plans and shall be constructed with PCC04460 in lieu of non-shrink grout.

These drawing shall include the following:

1. Material lists.
2. Material designations.
3. Method of removal of existing concrete and cutting reinforcing bars

The surface on which the new concrete is to be placed shall be intentionally roughened to a depth of ¼” and wetted. There shall be no standing water on the surface. Mixing, placing, curing and finishing of the concrete shall be in accordance with Article 6.01.03. Furnishing and placing reinforcing steel shall be in accordance with Section 6.02.

The Contractor, as directed by the Engineer, shall take adequate precautions to prevent any materials from dropping to the areas below which may result in damage to any existing construction, traffic or to adjoining property. Should any damage occur as a result of the Contractor’s operations, the Contractor shall repair and/or replace any such damage to the satisfaction of the Engineer at no cost to the State.

**Method of Measurement:** This work will be measured for payment by the number of modified concrete bearing pads constructed and accepted by the Engineer.

View Mode

**Basis of Payment:** This work will be paid for at the contract unit price each for “Modify Concrete Bearing Pad”, complete in place, which price shall include removal of existing concrete, cutting of existing reinforcing bars, furnishing and placing bagged repair mortar/grout, furnishing and placing access and all materials, equipment, tools and labor incidental thereto.

Concrete for bearing pads 4 inches or greater in thickness shall be paid under item “Column and Cap Concrete”. Reinforcing steel for bearing pads 4 inches or greater in thickness shall be paid under Items “Deformed Steel Bars - Galvanized” and “Drilling Holes and Grouting Dowels”.

**Pay Item**

Modify Concrete Bearing Pad

**Pay Unit**

EA.

## **ITEM #0601954A – EPOXY INJECTION CRACK REPAIR**

### **Description:**

This item shall consist of surveying the existing areas, locating all cracks to be repaired under this item, and rebonding the cracked concrete structures with a two component modified epoxy resin system injected into the cracked structure under low pressure using continuous positive displacement metering and mixing equipment as directed in accordance with these specifications.

Work under this item shall also include providing of a safe access to the structure for the delineation of the repair locations and review of the performed repair work. The Contractor shall not perform any repair work without prior approval of the Engineer for location, limits and types of repairs.

### **Materials:**

The modified epoxy resin shall be a pre-qualified epoxy resin (see Appendix A). A Materials Certificate and a Certified Test Report in accordance with Article 1.06.07 shall accompany each batch or lot of the material delivered to the job site, to verify the epoxy resin's accordance with the manufacturer's supplied infrared spectroscopy test results.

A batch of each component will be defined as that quantity of material that has been subjected to the same unit chemical or physical mixing process intended to make the final product substantially uniform.

Each component shall be packaged in steel containers not larger than 5 gallons in volume. The containers shall have lug type crimp lids with ring seals, shall be new, not less than 0.024-inch nominal thickness, and shall be well sealed to prevent leakage. If a lining is used in the container, it shall be of such character as to resist any action by the components. Each container shall be clearly labeled with the designation (component A or B), manufacturer's name and date of manufacturer, batch number and the following warning:

Any material, which shows evidence of crystallization or a permanent increase in viscosity or settling of pigments that cannot be readily redispersed with a paddle, shall not be used.

### **Construction Methods:**

A survey shall be undertaken by the Contractor on the area designated to be repaired, under the direction and to the satisfaction of the Engineer, to determine the exact limits and location of the area to be repaired under this item.

At the time of mixing, components A and B and the substrate temperature shall be between 50° and 85° Fahrenheit, unless the material has been pre-qualified at a temperature less than 75°

Fahrenheit, in which case this lesser temperature shall govern the use of the material. Any heating of the adhesive components shall be done by application of indirect heat. Immediately prior to filling the tanks of the mixing equipment, each component shall be thoroughly stirred with a paddle. Separate paddles shall be used to stir each component.

Cracks less than 1/8 inch in width shall not be repaired under this item unless directed by the Engineer, but shall be sealed by the application of "Penetrating Sealer Protective Compound".

Prior to sealing, the crack shall be cleaned free of dust, silt and any other material, which would impair bond. Cleaning shall be done with oil free compressed air jets or preferably by vacuum cleaning with an industrial vacuum cleaner (such as Black and Decker No. 95 Vackar or equivalent).

Injection ports shall be inserted in the cracks at intervals not less than the thickness of the concrete being injected. At the end of a crack or at a point where the thickness of the crack becomes less than 0.125 inches, the first port shall be half the distance from this point. The Contractor may use either surface injection ports or insertable injection ports as recommended by the manufacturer of the epoxy.

Drilling of the injection ports shall be done with a hollow drill bit to which vacuum is applied with an industrial vacuum cleaner (such as Black and Decker No. 95 Vackar or equivalent). The drill shall not contact any steel reinforcing or pre-stressing strands or ducts. A pachometer shall be used to locate the embedded steel.

Spacing of the ports shall be such that the injected adhesive will substantially fill the crack without excessive waste. If necessary to meet this requirement, the spacing of the ports shall be revised as approved by the Engineer as the injection process progresses.

The surface of the crack between ports shall be sealed with tape or other temporary surface sealant, which is capable of retaining the epoxy adhesive in the crack during pressure injection, and shall remain in places until the epoxy has hardened. Sealant tape and/or temporary surface sealant shall also be removed and any spillage of epoxy shall also be removed.

Epoxy adhesive shall be pumped into the cracks through the injection ports. The pump, hose, injection gun and appurtenances shall properly proportion and mix the epoxy and shall be capable of injecting the epoxy at a sufficient rate and pressure to completely fill all designated cracks. A suitable gasket shall be used on the head of the injection gun to prevent the adhesive from running down the face of the concrete. Pumping pressure shall be kept as low as practicable.

The temperature of the concrete shall not be less than 50° Fahrenheit at the time epoxy is injected, unless the epoxy has been pre-qualified at a lower temperature as here in before provided, in which case the lower temperature shall govern.

For a crack with uniform thickness, the epoxy adhesive shall be forced into the first port at one end of the crack until adhesive runs in substantial quantity from the next adjacent port. The first

port shall then be sealed and injection started at the next port. Injection shall then continue from port to port in this manner until the crack is fully injected.

Cracks with non-uniform thickness shall have the epoxy adhesive forced into the port at the widest separation in the crack until adhesive runs in substantial quantity from the two adjacent ports. The first port shall then be sealed and injection started at the adjacent port corresponding to the shortest length of the crack. Injection shall then continue from port to port in this manner until the short side of the crack is fully injected. Then, beginning with the port that is filled with epoxy adhesive but not sealed, injection shall continue from port to port until the crack is fully injected.

For slanting or vertical cracks, pumping shall start at the lower end of the crack. Where approximately vertical and horizontal cracks intersect, the vertical crack below the intersection shall be injected first. The ports shall be sealed by removing the fitting, filling the void with epoxy and covering with tape or surface sealant.

Before starting injection work and at 2-hour intervals during injection work when requested by the Engineer, a 3-fluid ounce sample of mixed epoxy shall be taken from the injection gun. Should these samples show any evidence of improper proportioning or mixing, injection work shall be suspended until the equipment or procedures are corrected.

Samples obtained above shall be used directly, without further stirring, to make test pieces for the Slant Shear Strength on Dry Concrete. One test piece shall be made at the beginning, middle and end of daily operations. The samples shall be allowed to cure for 7 days in the "Concrete Cylinder Curing Box". On the 7th day the samples shall be removed, and sent to the Department's laboratory and tested in accordance with the requirements for Slant Shear Strength (see Appendix A, attached).

Each sample shall be numbered consecutively and dated (with a waterproof marker) and it shall be noted which sample represents which part of the structure.

**Technical Advisor:** The Contractor shall obtain the services of a Technical Advisor who is employed by the manufacturer of the epoxy resin. The Technical Advisor shall assist the Engineer and the Contractor in the correct use of the injection resin. The Advisor shall be a qualified representative approved by the Engineer, and shall be at the site of the work when the work begins in connection with the epoxy injection and at such other times as the Engineer may request until completion of this item.

**Method of Measurement:**

This work will be measured for payment by the number of linear feet, designated by the Engineer to be injected and which were subsequently filled with epoxy.

Where cracks are designated for injection on opposite sides of a concrete member and the epoxy adhesive injected on one side penetrates through the members to completely fill the crack on the opposite side, payment will be made for the cracks in both sides as though injection had been

performed on both sides, except that no payment will be made for such cracks on the opposite side that were not designated by the Engineer for injection. No payment will be made for such cracks on the opposite side that are also smaller than 1/8”.

Where a crack designated for injection extends around the corner of a concrete member, the length of crack on both faces will be measured for payment.

Providing of a safe access for delineation and inspection of the performed repairs will not be measured for payment.

**Basis of Payment:**

This work will be paid for at the Contract unit price per linear foot for "Epoxy Injection Crack Repair", complete in place, which price shall include all preparation, materials, inspection access for delineation and inspection of performed repairs, services of qualified technical advisor, and all equipment, tools, labor and cleanup incidental thereto.

**Pay Item**

Epoxy Injection Crack Repair

**Pay Unit**

LF

## APPENDIX A

### **Prequalification Procedure**

The Prequalification Procedure shall consist of the following test procedure on the mixed epoxy resin at a temperature of 77°F, unless the Contractor desires to use the material at a lower temperature than 50°F, in which case the lower temperature shall be used to condition the material and test pieces.

#### **TEST:            VISCOSITY**

Requirements:    900 centipoise max. @20°F (±2°)  
4,000 centipoise max. @any test temperature

Test Method:     ASTM D 2393

#### **TEST:            GEL TIME (POT LIFE)**

Requirement:     4 to 60 minutes

Test Method:

##### A.    Apparatus

1. Unwaxed paper cups, 8 oz., 2¼ inches at base (Dixie Cup No. 4338 or equivalent).
2. Wooden tongue depressor with ends cut square (Puritan No. 705 or equivalent).
3. Stainless steel spatula with blade 6" x 1" and with end cut square.
4. Stopwatch, 1 second or smaller divisions.
5. Balance, 0.1gram divisions.

##### B.    Test Procedure

1. Condition both A and B components to required temperature (±2°F).
2. Measure proper volumes of well-mixed components A and B into an 8-oz. unwaxed cup to yield total mass of 60 (±2.0 grams).
3. Start stopwatch immediately and mix components for 60 seconds, stirring with a wooden tongue decompressor taking care to scrape the sides and bottom of the cup periodically.
4. Place the sample at the required temperature (±2°F) on a wooden bench top, which is free of excessive drafts.
5. Probe the mixture once with the tongue depressor every 30 seconds starting 4 minutes from the time of mixing.
6. The time at which a soft stringy mass forms in the cup is the gel time.

**TEST: SLANT SHEAR STRENGTH ON WET CONCRETE**

**Requirements:** 1700 psi min. after 7 days of cure in air at the required temperature ( $\pm 2^{\circ}\text{F}$ )

**TEST: SLANT SHEAR STRENGTH ON DRY CONCRETE**

**Requirements:** 4500 psi min. after 7 days of cure in air at the required temperature ( $\pm 2^{\circ}\text{F}$ )

**TEST: SLANT SHEAR STRENGTH**

A. Materials

1. Ottawa sand, ASTM C109
2. Portland cement, Type II
3. Water

B. Apparatus

1. Suitable mold to make diagonal concrete mortar blocks with a square base with 2-inch sides and having one diagonal face 2" x 4" starting about  $\frac{3}{4}$ -inch above the base. The diagonal faces of two such blocks are bonded together producing a block of dimensions 2" x 2" x 5".
2. Block made from the following composition:

|                            |           |
|----------------------------|-----------|
| - Ottawa sand, ASTM C109   | 30.1 lbs. |
| - Portland cement, Type II | 12.1 lbs. |
| - Water                    | 4.8 lbs.  |

Cure blocks 28 days in a fog room. Dry and lightly sandblast diagonal faces.

3. Suitable test press.

C. Test Procedure

Condition the components for 4 hours at the required temperature ( $\pm 2^{\circ}\text{F}$ ). Without entrapping air, stir the separate components for 30 seconds and place the proper volumes of each component on a plate and mix with a spatula for 60 + 5 seconds. Apply a coat approximately 0.010-inch thick to each diagonal surface. Place four  $\frac{1}{8}$ -inch square pieces of shim stock 0.012-inch thick on one block to control final film thickness. Before pressing the coated surface together, leave the blocks so that the coated surfaces are horizontal until the epoxy reacts slightly to prevent excessive flow. Press diagonal surfaces of each block together by hand and remove excess epoxy adhesive.

Align the blocks so that the ends and sides are square and form a block 2" x 2" x 5". Use blocks of wood or metal against each 2" x 2" end, to keep diagonal faces from slipping until epoxy hardens.

After the required cure time, apply a suitable capping compound to each of the 2" x 2" bases, and test by applying a compression load with a Universal Test Machine or other suitable testing apparatus at the rate of 5000 lbs./min, until failure.

Report results in pounds per square inch

$$= \frac{\text{Load in Pounds}}{4}$$

For wet shear strength, soak another set of blocks in water for 24 hours at the required temperature ( $\pm 2^\circ\text{F}$ ). Remove and wipe off excess water. Prepare, cure, and test sample according to above test procedure.

**TEST:                    TENSILE STRENGTH**

Requirements:        4500 psi Min.

**TEST:                    ELONGATION**

Requirements:        15% Max.

Test Method:        TENSILE STRENGTH AND ELOGATION

**A.     Apparatus**

1. Leveling table about 12" x 8" with removable rim ¼-inch thick by ½-inch wide.
2. Mylar or similar plastic sheeting 0.004-inches thick.
3. Air circulation oven capable of maintaining 158°F ( $\pm 3^\circ\text{F}$ ).
4. Cutting die, Figure I
5. Thickness gauge, ⅛-inch.
6. Release agent, non-silicone type.

**B.     Procedure**

1. Place Mylar sheet on leveling table.
2. Coat inside edge and bottom of rim with the release agent and secure to table with screws.
3. Level the table.

4. Mix sufficient volume of well-mixed component A and well mixed component B in the proper volumes so as to be able to form a layer 1/8-inch deep when placed inside the ring on the leveling table.
5. Introduce as few bubbles as possible during mixing.
6. Flush surface of epoxy with a heat gun or Bunsen burner to remove air bubbles on surface. Repeat if necessary.
7. Allow the specimen to cure for 18 hours at the required temperature ( $\pm 2^{\circ}\text{F}$ ).
8. Remove specimen from table and strip off Mylar sheet. Cure specimen for 5 hours at  $158^{\circ}\text{F}$  ( $\pm 3^{\circ}\text{F}$ ).
9. Allow specimen to cool to the required temperature and cut specimens using cutting die shown in Figure I.
10. Proceed as specified in ASTM D 638, using 0.2-inches/minute test rate and 1-inch gauge length.

**TEST:                    INFRARED SPECTROSCOPY**

**Requirement:**        Infrared Spectroscopy Tests shall be obtained of Components A and B

**Test Method:**        RECORDING SPECTROPHOTOMETER

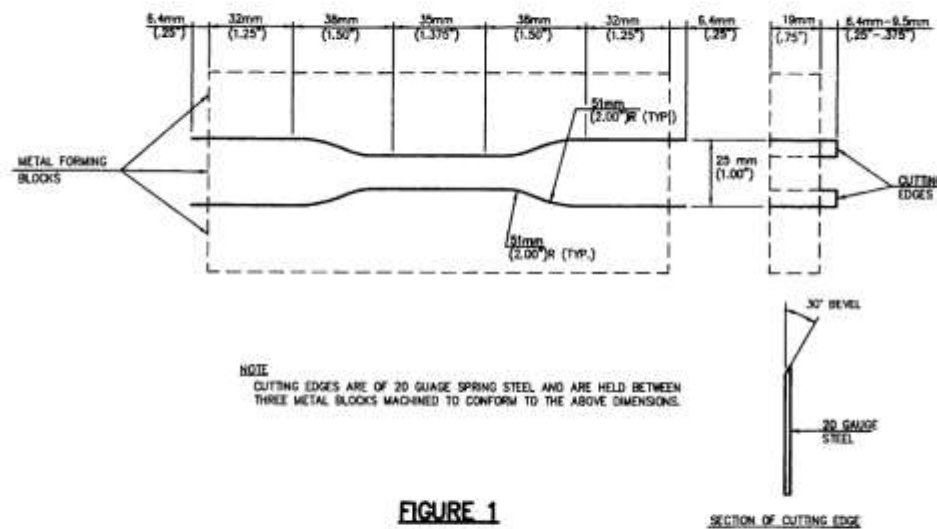
**A.     Apparatus**

1. Perkin–Elmer Model 137-B Infracord Spectrophotometer, automatic recording system from 2.5 microns to 15 microns with a two-speed recorder. Comparable results can be obtained with similar resolution.
2. Disk holder for a one-inch diameter disk.
3. Two sodium chloride crystal disks one-inch in diameter.
4. Sorvall SS-3 Automatic Superspeed Centrifuge, or comparable centrifuge, which is able to separate the liquid and solid phases of the epoxy components without previous dilution with solvents.

**B.     Procedure**

1. Place 15 grams of component A into a stainless steel centrifuge tube.
2. Counterbalance with component B in a second centrifuge tube.
3. Centrifuge the two components at 17000 rpm until there is a supernatant liquid layer present in each tube. This takes 20 to 30 minutes.
4. Place a drop of component A liquid layer on a sodium chloride disk.
5. Place another sodium chloride disk over the drop, rotate, and press down until the liquid has flowed into a uniform layer of proper thickness between the two sodium chloride disks.
6. Place the disks in the holder and run an absorption curve with the infrared spectrophotometer.

7. More or less liquid may be used between the disks so as to produce a maximum absorption of 0.7 to 1.0 for the strongest absorption point on the curve.
8. Clean the disks with toluene and dry.
9. Repeat steps 4 through 8 with the liquid layer from component B.
10. Record each curve in order that they may be used for comparison purposes with lots of material delivered to the job site.



## **ITEM #0602007A – VARIABLE QUANTITY DEFORMED STEEL BARS**

### **6.02.01 - Description:**

*After the first paragraph add the following:*

This item is a Variable Quantity item for work performed in conjunction with the item “Variable Quantity Partial Depth Patch” and for work performed under the item “Variable Quantity Full Depth Patch (High Early Strength Concrete)” and shall include all the work specified.

### **6.02.05 - Basis of Payment:**

*Replace the entire Article with the following:*

This work will be paid for at the Contract unit price per pound for “Variable Quantity Deformed Steel Bars” complete in place including furnishing, fabricating and placing reinforcing steel, welding splices and all materials, equipment, tools, providing access, labor and work incidental thereto.

The Contractor will be paid the guaranteed minimum quantity for this Variable Quantity item unless the final quantity authorized and accepted by the Engineer is greater than the guaranteed minimum estimated quantity or the work is deleted from the contract in its entirety in accordance with Article 1.09.05.

For quantities in excess of the guaranteed minimum quantity but less than the estimated maximum quantity, the Contractor will receive payments for the actual quantities authorized and accepted by the Engineer using the unit price bid.

For quantities exceeding the estimated maximum quantity, the Contractor shall request approval from the Engineer prior to proceeding with the additional work. Payment for quantities authorized by the Engineer in excess of the estimated maximum quantity will be paid in accordance with the special provision for Articles 1.04.02 and 1.04.03 of the Standard Specifications Form 818 found in this Contract.

#### **Pay Item**

Variable Quantity Deformed Steel Bars

#### **Pay Unit**

lb.

## **ITEM #0602903A – DRILLING HOLES**

**DESCRIPTION:** This work shall consist of core drilling through a concrete bridge parapet, wingwall or retaining wall at the locations as shown on the plans, and in accordance with this specification. The drilled hole shall be used to allow the passage of rigid electrical conduit (galvanized steel or fiberglass) into an existing junction box.

**MATERIALS:** Mortar shall conform to the requirements of Article M.11.04.

**CONSTRUCTION METHOD:** The Contractor shall core drill through a concrete bridge parapet, wingwall, or retaining wall at the locations as shown on the plans. The drilled hole shall have a diameter no larger than the minimum diameter required to accept the size conduit as specified on the plans. The Contractor shall avoid damaging existing reinforcing bars when drilling through the structure wall. The location of the existing re-bar shall be determined using a re-bar locator. Where a hole is drilled into the back of an existing junction box, the hole shall be cleaned, and all loose dust removed prior to installation of the conduit. Once the conduit has been inserted through the drilled hole, the Contractor shall seal around the conduit using a silicon type sealant rated for outdoor use. Conduit shall be secured to the junction box using lock-nuts and shall be terminated with an insulated bonding bushing.

The drilling method used shall not cause spalling or other damage to the concrete. Concrete spalled or otherwise damaged by the Contractor's operations shall be repaired with mortar and finished flush to match the existing outside face of the structure wall.

Conduit will be paid for under a separate bid item.

**METHOD OF MEASUREMENT:** This work will be measured for payment by the actual number of holes drilled, complete and accepted.

**BASIS OF PAYMENT:** This work shall be paid for at the contract unit price each for "Drilling Holes" of the diameter and depth required, complete and accepted in place, which price shall include locating re-bar, drilling, sealing around conduit, mortar, and all material, tools, equipment, labor, and work incidental thereto.

**Pay Item**  
Drilling Holes

**Pay Unit**  
EA.

## **ITEM #0602910A – DRILLING HOLES AND GROUTING DOWELS**

**Description:** Work under this item shall consist of drilling holes in existing concrete and grouting dowels at the locations shown on the plans, in accordance with the Plans, the manufacturer's recommendations, and as directed by the Engineer.

**Materials:** Adhesive Bonding Compound: The chemical anchor material shall meet the requirements of M.03.07.

Materials Certificate and a Certified Test Report shall be required for the adhesive bonding material in accordance with Article 1.06.07, certifying the conformance of this material to the requirements stated herein.

**Construction Methods:** The Contractor shall drill holes into the concrete to the depth and at the locations shown on the Plans.

Dowel installation shall be in conformance with Article 6.02.03.

The Contractor shall submit the following to the Engineer for approval: type of drill, diameter of bit, method of cleaning holes and methods of replacement of the adhesive bonding material. Specifications and recommendations for the aforementioned may be obtained from the manufacturer of the adhesive bonding material. The mass of the drill shall not exceed 20 lbs.

If the existing reinforcing steel is encountered during drilling, the holes may be relocated only if approved by the Engineer. Drilling methods shall not cause spalling, cracking, or other damage to the concrete. Those areas damaged by the Contractor shall be repaired by the Contractor in a manner suitable to the Engineer and at no expense to the State.

The Contractor shall take necessary precautions to prevent any materials from falling onto areas below.

**Method of Measurement:** This work will be measured for payment by the completed number of holes drilled and dowels grouted and accepted.

**Basis of Payment:** This work will be paid for at the Contract unit price per dowel for "Drilling Holes and Grouting Dowels", which price shall include drilling holes, preparing holes, applying adhesive bonding material, and installation of the dowels. It shall also include all material, excluding dowels, and all equipment, tools and labor incidental thereto.

Dowel Bars shall be paid under "Deformed Steel Bars" or "Deformed Steel Bars - Galvanized".

**Pay Item**  
Drilling Holes and Grouting Dowels

**Pay Unit**  
EA.

## **ITEM #0602980A – CLEAN AND COAT EXPOSED REINFORCING STEEL**

**Description:** This item includes cleaning and coating exposed reinforcing steel with a zinc-rich coating system. This work also includes removal and disposal of loose or delaminated concrete and severely deteriorated reinforcing steel as determined by the Engineer.

**Materials:** The Contractor may select one of the following products and shall submit a Materials Certificate in accordance with 1.06.07:

Crown Cold Galvanize Coating  
93% Zinc Rich  
7007VG  
Aervoe Industries, Inc.  
P.O. Box 485  
Gardnerville, NV 89410  
1-800-227-0196 or 1-775-783-3100  
[www.aervoe.com](http://www.aervoe.com)

ZRC Cold Galvanizing Repair Compound  
ZRC 221  
ZRC Worldwide  
145 Enterprise Drive  
Mansfield, MA 02050-2132  
1-800-831-3275 or 1-781-319-0404  
[www.zrcworldwide.com](http://www.zrcworldwide.com)

The Contractor may propose other products for the Engineer's acceptance by submitting a Materials Certificate and Certified Test Report in accordance with 1.06.07, showing that the coating meets these requirements:

- ASTM A780, Annex A2 with zinc dust concentration above 92% in the dried film;
- Zinc dust pigment shall conform to ASTM D520, Type III;
- The VOC content shall meet the current DEEP Air Compliance regulations for the coating category "zinc-rich primer;"
- Corrosion Performance Criteria: Must pass a minimum of 2000 hours of salt spray testing for a minimum of 2 mils of zinc in the dry film, without failure according to ASTM B117.

### **Construction Methods:**

Submittals: The Contractor shall prepare and submit written procedures and working drawings in accordance with 1.05.02.

The Submittals shall address the following:

- Proposed equipment and removal methods;
- Debris shields and access;
- Coating product information, including coating manufacturer, product name, application instructions, technical data and MSDS/SDS;
- The Manufacturer's written application instructions at a minimum shall contain the following:
  - Number of coats needed to meet the Corrosion Performance Criteria
  - Minimum wet film and dry film thickness per coat

- Minimum and maximum recoat time
- Thinning requirements if allowed by the Manufacturer.

1. **Inspection of the Repair Area:** The limits of concrete removal around the exposed reinforcing steel to be coated will be determined by the Engineer. The Engineer will also identify any severely corroded reinforcing steel that requires removal.

The Contractor shall provide clear access to the repair areas to determine the limits of concrete removal. During this time, the Engineer will perform an inspection of the repair area and designate where concrete removal is required. The inspection will use visual assessment as well as sounding for delamination (hammer tapping).

The Contractor must inform the Engineer, in writing, of the date that the repair location will be available for inspection operations and the method that will be used for access. Notification shall be given to the Engineer at least 7 days prior to the date so that the Engineer can plan accordingly and verify that the proposed method of access is acceptable.

The Contractor shall not perform any work to the repair location until all necessary inspection operations have been performed, unless given permission in writing by the Engineer. The Contractor shall include the time required for inspection in its overall construction schedule and shall include all costs associated with providing access for the Engineer.

2. **Removal of Deteriorated Concrete:** All deteriorated concrete designated for removal under this item shall be removed within the limits shown on the plans and where ordered by the Engineer. The limits of each area of concrete to be removed will be delineated by the Engineer and suitably marked.

Hand tools shall be used first to remove loose and hollow sounding concrete. If the concrete cannot be removed with hand tools, the Engineer may authorize the use of pneumatic hammers. The weight of pneumatic hammers, when used shall not exceed 15 pounds. The Contractor shall provide structurally adequate shields approved by the Engineer for protection of adjacent areas.

Where reinforcing steel is identified by the Engineer to be removed, a portion of the reinforcing steel shall be cut and removed.

3. **Cleaning Exposed Reinforcing Steel:** The surface of the exposed reinforcing steel shall be power tool cleaned according to SSPC-SP3 requirements to remove all concrete fragments, loose or powder-like rust, dust, dirt, loose particles, and other bond inhibiting matter. Surfaces shall be wiped down to remove the remaining dust and contaminants. Cleaning shall be done just prior to coating.
4. **Coating Exposed Reinforcing Steel:** The zinc-rich coating shall be prepared according to the Manufacturer's recommendations. During application, the container shall be agitated often to provide a homogenous mixture. The coating material shall be brush-applied in accordance

with the manufacturer's written requirements. The surrounding concrete shall not be coated. Care shall be taken to coat all exposed portions of each bar's perimeter and all exposed surfaces where bars overlap or are in contact with each other. Manufacturer's requirements for recoat times shall be strictly adhered to.

5. **Supply and Storage of Material:** All coatings shall be supplied in sealed containers bearing the Manufacturer's name, product designation and expiration date. Coating shall be furnished in the Manufacturer's original, sealed and undamaged containers. The Contractor shall provide a suitable facility for the storage of the coating, which is in accordance with the latest federal and state regulations.

**Method of Measurement:** This work will be measured for payment by the actual number of linear feet of reinforcing steel cleaned and coated and accepted by the Engineer. The length of coated reinforcing steel shall be measured along the exposed face of the bar. Where bars are adjacent to each other, the length of each bar shall be measured. No deduction in length shall be made where bars overlap.

**Basis of Payment:** This work will be paid for at the Contract unit price per linear foot for "Clean and Coat Exposed Reinforcing Steel," complete and accepted, which price shall include all materials, equipment, tools and labor incidental thereto, including access to the repair areas for repair and inspection, debris shields and disposal of debris.

| <u><b>Pay Item</b></u>                   | <u><b>Pay Unit</b></u> |
|--|------------------------|
| Clean and Coat Exposed Reinforcing Steel | l.f.                   |

**ITEM #0603061A – STRUCTURAL STEEL (SITE NO. 1)**

**ITEM #0603062A – STRUCTURAL STEEL (SITE NO. 2)**

**ITEM #0603063A – STRUCTURAL STEEL (SITE NO. 3)**

**ITEM #0603064A – STRUCTURAL STEEL (SITE NO. 4)**

Section 6.03 is supplemented and amended as follows:

**6.03.01—Description:** *After the third paragraph, add the following:*

“This special provision provides additional requirements for the surface preparation, shop painting, and field touch-up painting of new structural steel.”

**6.03.02—Materials:** *After the first paragraph, add the following:*

“Painting materials for this work shall meet the following:

- The Contractor shall select a three-coat system from the qualified product List A, issued by the Northeast Protective Coating Committee (NEPCOAT). The approved NEPCOAT listings may be found at the NEPCOAT website at <http://www.nepcoat.org/>
- Shop paint shall be inorganic zinc chosen from NEPCOAT List A.
- The system chosen shall have a prime coat that has achieved a Class ‘B’ slip coefficient for faying surfaces. Top coat paint color shall be as noted on the plans.
- Both the shop painted and field touchup applied coating systems shall be of the same three-coat system. A compatible organic zinc rich primer shall be used for any necessary field touch up.
- The same coating material manufacturer shall furnish all materials for the complete coating system. Intermixing of materials within and between coating systems will not be permitted.
- Thinning of paint shall meet the manufacturer’s written instructions.

All components of the coating system and the mixed paint shall comply with the Emission Standards for Volatile Organic Compounds (VOC) Content Limits and Emission Standards stated in the Connecticut Department of Energy and Environmental Protection's Administration Regulation for the Abatement of Air Pollution, Sections 22a-174-41 through 41a and 22a-174-20(s), respectively.”

**6.03.03—Construction Methods:**

*Revise Subarticle 5(f) “Field Erection - High Strength Bolted Connections” as follows:*

*Replace the first sentence of the fourth paragraph “Surface Conditions: At the time of assembly ... other foreign material.” with the following:*

“Connection faying surfaces within portions of structural steel designated to be painted shall receive a single coat of primer in accordance with requirements stipulated elsewhere in this special provision.”

*Delete the fifth paragraph of Subarticle 5(f) and paragraphs numbered 1 through 3 after it: “Paint is permitted on ... wire brushing is not permitted.”*

*After the last paragraph of Article 6.03.03 add the following:*

“The painting application shall be done in compliance with the following requirements:

**Qualifications of Shop Painting Firm:** All shop painting of structural steel must be performed by and in an enclosed shop that is certified by the SSPC Painting Contractor Certification Program QP-3, entitled “Standard Procedure for Evaluating Qualifications of Shop Painting Contractors” in the enclosed shop category or by a shop that holds an AISC Quality Certificate with a “Sophisticated Paint Endorsement” in the enclosed shop category. The firm shall be fully certified, including endorsements, for the duration of the surface preparation and coating application. A copy of the subject certification shall be provided to the Engineer prior to commencing any surface preparation or coating application.

The shop painting firm is required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)**-certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each painting/blasting crew during blast cleaning and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand-held nozzle blast cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be kept current for the duration of the Project work.

The complete coating system shall be applied in an enclosed shop except for field touch-up painting which shall be applied after all bolts are fully tensioned and deck formwork removed. The enclosed shop shall be a permanent facility with outside walls to grade and a roof where surface preparation and coating activities are normally conducted in an environment not subject to outdoor weather conditions or blowing dust.

**Quality Control Inspection of Shop Painting:** The firm performing shop painting of the structural steel shall have a written quality control (QC) program. A copy of the QC program and record keeping procedures shall be provided to the Engineer prior to commencing any surface preparation or coating application. The program shall contain the following:

1. Qualifications of QC staff.
2. Authority of QC staff. QC staff must have the authority to stop non-conforming work.
3. Procedure for QC staff to advise operation supervisor, in writing, of non-conforming work.
4. Sample copy of QC inspection reports that will document compliance with specifications.

5. Procedure for calibrating inspection equipment and recording calibration.
6. Procedure for repairing defective coating applications.

The Contractor or Shop shall provide at least one Quality Control Inspector for the duration of the shop application to provide Quality Control. The QC Inspector must be a National Association of Corrosion Engineers (NACE) Certified Coating Inspector Level 3 with Peer Review. The QC Inspector shall verbally inform the Engineer on a daily basis, of the progress and any corrective actions performed on the coating work. The QC Inspector shall be present during all cleaning and coating operations.

The Contractor or Shop shall be responsible for purchasing and providing the latest version of the NACE Coating Inspector Log Book(s) and all necessary inspection tools. The Contractor's QC Inspector shall stamp the front page of each inspector's log book used during painting operations. The stamped book(s) shall indicate the inspector's NACE certification number, certification expiration date and shall also be signed. All daily coating activity shall be recorded in the Log Book. Copies of the log entries shall be provided on a daily basis to the Department's Quality Assurance (QA) shop representative. Upon completion of the coating, the log book(s) shall then be furnished to the Department's QA shop representative.

**Technical Advisor:** The Contractor or Shop shall obtain the services of a technical advisor who is employed by the coating manufacturer to assist the Engineer and shop painting firm during this work. The technical advisor shall be a qualified representative and shall be made available at the Shop upon request by the QC Inspector or the Engineer.

**Surface Preparation:** The following steps shall be performed prior to abrasive blast cleaning of steel members:

1. All corners and edges shall be rounded to a 1/16-inch radius or chamfered to a 1/16-inch chamfer.
2. All fins, slivers and tears shall be removed and ground smooth.
3. All rough surfaces shall be ground smooth.
4. Flame cut edges shall be ground over their entire surface such that any hardened surface layer is removed, and subsequent abrasive blast cleaning produces the specified surface profile depth.

Immediately before abrasive blast cleaning all steel members shall be solvent cleaned in accordance with SSPC-SP1 - "Solvent Cleaning."

Abrasive blast cleaning shall be performed in accordance with SSPC-SP 10 - "Near White Blast Cleaning" using a production line shot and grit blast machine or by air blast. The abrasive working mix shall be maintained such that the final **surface profile** is within the range described herein.

The QC Inspector shall test the abrasive for oil, grease or dirt contamination in accordance with the requirements of ASTM D7393 and document the test results. Contaminated abrasive shall not be used to blast clean steel surfaces. The blast machine shall be cleared of all contaminated abrasive and then solvent cleaned thoroughly in accordance with SSPC-SP 1 "Solvent Cleaning." New

uncontaminated abrasive shall be added. Abrasive shall be tested for contaminants in accordance with the requirements of ASTM D7393 prior to the start of blast cleaning operations and at least every four hours during the blast cleaning operations.

All compressed air sources shall have properly sized and designed oil and moisture separators, attached and functional, to allow air at the nozzle, either for blast cleaning, blow-off, painting or breathing, to be oil-free, and moisture-free. The equipment shall have sufficient pressure to accomplish the associated work efficiently and effectively.

The QC Inspector shall perform the blotter test and document the results at the start of each blasting shift and at least every four hours during the blasting operation to ensure that the compressed air is free of oil and moisture. The blotter test shall be performed in accordance with the procedure outlined in ASTM D4285. For contaminated air sources, the oil and moisture separators shall be drained and the air retested.

No surface preparation or coating shall be done when the relative humidity is at or above 80% or when the surface temperature of the steel is less than five (5) degrees Fahrenheit above the dewpoint temperature as determined by a surface thermometer and an electric or sling psychrometer.

**Surface Profile:** The steel surface profile shall be 1 to 3 mils. Each girder or beam shall have the surface profile measured at a minimum of three locations in accordance with the test requirements of ASTM D4417, Method C. Smaller pieces such as diaphragms shall have the surface profile measured at a minimum of three locations on one piece at the beginning of abrasive blast operations and at least every four hours and at the end of abrasive blast cleaning operations. This measurement shall be performed with both coarse (0.8-2.0 mils) and extra coarse (1.5-4.5 mils) replica tape. During this measurement, special attention shall be given to areas that may have been shielded from the blast wheels, such as the corners of stiffeners and connection plates. The impressed tapes shall be filed in the NACE Coating Inspector's Log Book.

**Application Methods:** The coating system shall be applied by spray equipment of a type and size capable of applying each coat within the required thickness range. The applicator shall strictly adhere to the manufacturer's written recommendations for application methods, cure times, temperature and humidity restrictions and recoat times for each individual coat of the specified system. However, in no case shall coatings be applied in ambient conditions that exceed the relative humidity and dewpoint temperature control limits specified herein. Brushes shall be used in areas where spray application will not achieve acceptable results. Brushing technique shall be performed in a manner that will provide a uniform, blended finish.

Conventional spray equipment with mechanical agitators shall be used for prime coat application.

All storage, mixing, thinning, application and curing techniques and methods shall be accomplished in strict accordance with the printed material data sheets and application instructions published by the respective coating material manufacturer.

Surfaces shall be painted with the specified prime coat material before the end of the same work shift that they were blast cleaned and before any visible rust back occurs. Applied coatings shall not have runs, sags, holidays, pinholes or discontinuities.

The dry film thickness shall be within the range specified in the manufacturer's printed literature for the specified coating system. Dry film thickness shall be measured in accordance with SSPC-PA 2. The prime, intermediate and top coats shall be of contrasting colors as determined by the Engineer. There shall be no color variation in the topcoat as determined by comparison with Aerospace Material Specification Standard 595 (AMS-STD-595).

**Areas Requiring Special Treatment:** All steel surfaces shall receive the three-coat shop applied system as specified except the following particular area types which shall be treated as follows:

1. Faying surfaces of connections shall receive a single application of primer. The dry film thickness shall be no greater than the thickness tested on the coating manufacturer's Certified Test Report for slip coefficient.
2. All steel surfaces within four (4) inches of field welds shall receive a single mist coating of primer at 0.5 - 1.5 mils dry film thickness.
3. Top surfaces of top flanges that will be in contact with concrete shall receive a single mist coating of primer at 0.5 - 1.5 mils dry film thickness.
4. Edges and shop welds shall be locally hand-striped with a brush in the longitudinal direction with an additional coat of an appropriate inorganic zinc-rich primer prior to application of the full intermediate coat. The application of the striping materials shall be in accordance with the coatings manufacturer's written instructions. The striping material shall be a contrasting color to distinguish it from the primer and intermediate coats.
5. The interior surfaces of box girders, including bracing, shall be prepared in accordance with these specifications then coated with the first two coats of the three-coat system. The intermediate coat in these areas shall be white and shall match AMS-STD-Color Number 27925.

**Adhesion:** Adhesion strength of the fully coated assemblies shall be the more restrictive of the manufacturer's specified adhesion strength or at least 600 psi for systems with organic zinc primers and at least 250 psi for systems with inorganic zinc-rich primers, measured as per ASTM D4541 using apparatus under Annex A4. All adhesion test locations shall be recoated in accordance with this specification at no additional cost. The QC Inspector shall perform adhesion strength tests every 500 sf and shall document the adhesion strength test results.

If adhesion test results are less than the specified value, but equal to or greater than 80% of the specified value, four (4) additional adhesion tests shall be taken within the 500 sf area of the failed test. If any of the additional adhesion tests are less than the specified value, the coating shall be removed from the entire piece and re-applied at the Contractor's expense. If any adhesion tests are less than 80% of the specified value, the entire coating system shall be removed from the piece and re-applied at the Contractor's expense.

Smaller pieces such as diaphragms shall be analyzed in lots that have an overall coated surface area of approximately 500 sf.

**Protection of Coated Structural Steel:** All fully coated and cured assemblies shall be protected from handling and shipping damage with the prudent use of padded slings, dunnage, separators and tie downs. Loading procedures and sequences shall be designed to protect all coated surfaces. Erection marks for field identification of members and weight marks shall be affixed in such a manner as to facilitate removal upon final assembly without damage to the coating system.

**Field Touch-Up Painting of Shop Applied Coating:** Field touch-up painting shall be undertaken by the Contractor for the purpose of completing coating applications of masked-off areas at splices, connections, and for the repair of coated surfaces damaged during shipment or construction, as directed by the Engineer. The aesthetics of any field painting is very important. Every effort must be made to perform any field painting in a professional manner that does not affect the appearance or aesthetic value of the structural steel in any way. Significant color variations or texture changes between the shop painting and field painting will not be allowed. The Contractor will be required to perform any additional field painting work required to provide consistent color and texture throughout the structural steel. This is especially true for all fascia surfaces and areas exposed to public view. The Engineer will be the sole judge on color variations and texture variations of the field painting.

The Painting Contractor shall submit for the Engineer's approval a complete coating application procedure for all touch-up painting and corrective work.

The field-applied coating for touch-up painting shall be the same system used in the shop-applied application. The intermediate and topcoat material for field touch-up painting shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used.

Field application of coatings shall be in accordance with the manufacturer's written application guidelines and these specifications. All areas cleaned to bare metal must be coated with zinc-rich primer before any visible rusting occurs.

After all concrete is placed and the forms are removed, all rust, scale, dirt, grease, concrete splatter and other foreign material shall be completely removed from all painted surfaces. All surfaces to be field painted shall also be cleaned by solvent cleaning in accordance with SSPC-SP 1, hand tool cleaning SSPC-SP 2, and power tool cleaning SSPC-SP 3 and SSPC-SP 11. Areas cleaned to SSPC-SP 11 must have a 1-3 mil profile and must be primed prior to rusting. All debris generated from cleaning operations must be contained and properly disposed of by the Contractor.

Bolts, nuts, washers and surrounding areas shall receive brush applications of intermediate and topcoat after final tensioning. Careful attention shall be given to bolted connections to insure that all bolts, nuts and washers are fully coated and that no gaps are left unfilled and uncoated.

Damage to the coating system that extends to the steel surface (such as scratches, gouges or nicks), shall have the entire three-coat system locally reapplied after power tool cleaning to bare metal in **accordance with SSPC-SP 11. The coating system adjacent to the damage shall be**

**feathered back to increase** the surface area for touch up painting. The area cleaned to SSPC-SP 11 shall be primed with a zinc-rich primer before rusting occurs.

Damage to the coating system that extends back only to the prime or intermediate coat, shall only have the topcoat applied. Application of the touch-up materials in these damaged areas shall be performed by brush only.

During any field painting the Contractor shall protect property, pedestrians, vehicular and other traffic upon, underneath, or in the vicinity of the bridge, and also all portions of the bridge superstructure and substructure against damage or disfigurement from errant coating materials.

Tarps shall be used to collect all surface preparation debris. The Contractor shall be responsible for disposing of all removed materials, including tarps.

Contractor – Subcontractor Qualifications: Contractors and subcontractors doing field touchup painting work are required to be certified by the SSPC Painting Contractor Certification Program (PCCP) to QP-1, entitled “Standard Procedure for Evaluating Qualifications of Painting Contractors (Field Application to Complex Structures)” at the time of field touchup coating application.

Contractors and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)**-certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each painting/blasting crew during blast cleaning and spray application (Atmospheric and Immersion Service) operations. A crew member is a person who is on the job performing hand-held nozzle blast cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be full, not interim, and must be kept current for the duration of the Project work. If a Contractor’s, subcontractor’s or any craft-worker’s certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

Requests for extension of time for any delay to the completion of the Project due to an inactive certification will not be considered and liquidated damages will apply. At the option of the Engineer, if such a delay will adversely impact the successful and timely completion of the Project, the Department may require the Contractor to engage another SSPC certified contractor to do the painting work at the prime contractor’s expense.

**Quality Control Inspection of Field Touchup Painting:** The Contractor performing field touchup painting of the structural steel shall have a written quality control (QC) program. A copy of the QC program and record keeping procedures shall be provided to the Engineer prior to commencing any surface preparation or coating application. The program shall contain the following:

1. Qualifications of QC staff.
2. Authority of QC staff. QC staff must have the authority to stop non-conforming work.
3. Procedure for QC staff to advise operation supervisor, in writing, of non-conforming work.

4. Sample copy of QC inspection reports that will document compliance with specifications.
5. Procedure for calibrating inspection equipment and recording calibration.
6. Procedure for repairing defective coating applications.

The Contractor shall provide at least one (1) Coating Inspector who is a National Association of Corrosion Engineers (NACE) Certified Coating Inspector Level 3 with Peer Review for the duration of the field application to provide Quality Control. The QC Inspector shall verbally inform the Engineer on a daily basis, of the progress and any corrective actions performed on the coating work. The QC Inspector shall be present during all cleaning and coating operations.

The Contractor shall be responsible for purchasing and providing the latest version of the NACE Coating Inspector Log Book(s) and all necessary inspection tools. The Contractor's QC Inspector shall stamp the front page of each inspector's log book used during painting operations. The stamped book(s) shall indicate the inspector's NACE certification number, certification expiration date and shall also be signed. All daily coating activity shall be recorded in the Log Book. Copies of the log entries shall be provided on a daily basis to the Department's Quality Assurance (QA) field representative. Upon completion of the coating, the log book(s) shall then be furnished to the Department's QA field representative.

**General:** The word "PAINTED" followed by the month and year the painting of the structure is completed along with the CTDOT Project Number and the manufacturer's abbreviations for each of the three coats, shall be stenciled on the inside of a fascia girder at mid-depth of the girder in three (3) inch high block letters located near the abutment, so as to be clearly visible from the ground below. Paint for stenciling information shall be of a contrasting color and shall be compatible with the topcoat."

**6.03.05—Basis of Payment:** *Add the following at the end of the second paragraph:*

"Payment for either method for new structural steel, complete in place, shall also include shop painting, all field touch-up painting and corrective or repair field painting, QC Inspector(s), QC Log Book(s) and testing equipment, technical advisor, "Painted" stencil, equipment, tools and labor incidental thereto."

**ITEM #0603081A – STRUCTURAL STEEL REPAIRS (SITE NO. 1)**

**ITEM #0603082A – STRUCTURAL STEEL REPAIRS (SITE NO. 2)**

**ITEM #0603083A – STRUCTURAL STEEL REPAIRS (SITE NO. 3)**

**ITEM #0603084A – STRUCTURAL STEEL REPAIRS (SITE NO. 4)**

Work under this item shall meet the requirements of Section 6.03, amended as follows:

**Description:** The following is added to Article 6.03.01:

Work under this item shall consist of removing existing deteriorated structural steel and furnishing, fabricating, transporting, storing, handling and installing new structural steel repair plates, angles, and channels for the purpose of strengthening beam webs, beam flanges, connection plates, bearing stiffeners and replacing support members as shown on the plans, as directed by the Engineer and in accordance with these specifications.

**Materials:**

The materials for this work shall meet the requirements of Article M.06.02 and the following:

Materials for this work shall be stored off the ground before, during after fabrication. It shall be kept free from dirt, grease and other contaminants and shall be reasonably protected from corrosion.

The epoxy-based filler material shall be Steel-Seam FT910 as manufactured by Sherwin-Williams, or Engineer approved equivalent product.

**Construction Methods:** The following is added to Article 6.03.03:

- 5. Removal of Deteriorated Steel and Installation of Repair Steel:** Wherever arc gouging, flame cutting, or welding will be used, existing paint must first be removed. All steel repair shall be performed after the existing paint is removed. The removal of paint shall be performed per the requirements of items “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)” and “Localized Paint Removal and Field Painting of Existing Steel”.

Existing deteriorated steel shall be cut out and removed in accordance with the plans and as ordered by the Engineer. Existing welds shall be removed by machining, grinding, chipping, or air carbon-arc gouging and in such a manner that the remaining base metal is not wicked or undercut. A minimum of 1/8” of weld metal shall be left in place if arc gouging is the selected removal method and the remaining weld metal shall be removed by grinding. Welders

who perform arc gouging shall be SMAW certified.

Plates shall be installed as shown on the plans and any match marks shall be followed. The plates shall be carefully handled so they will not be bent or otherwise damaged.

Hammering which will injure or distort new or existing members is not permitted. All surfaces to remain in permanent contact shall be cleaned before the final welding.

The epoxy-based filler material shall be used to fill corrosion areas of steel surfaces to the level of their original surface profile. The epoxy-based filler material shall also be used to plug open gaps between the existing steel and the steel repair plates created from discontinuing welds as shown on the Plans or as directed by the Engineer.

**Method of Measurement:** Delete the entire article and add the following to Article 6.03.04:

“Structural Steel Repairs (Site No. X)” will be measured in accordance with Connecticut Department of Transportation Standard Specifications Article 6.03.04, on the net hundredweight determined by computation.

The weight of the structural steel to be measured for payment under this item shall be computed on the basis of the net finished dimensions of the plates based on measurements taken by the Engineer. The weight of weld metal and temporary erection bolts, boxes, crates, and other containers used for shipping, materials used for supporting members during transportation and erection, and weld metal shall not be measured for payment.

There shall be no measurement or separate payment for the cost of removing paint and for grinding copes, gouges and cuts.

**Basis of Payment:** Delete the entire article and add the following to Article 6.03.05:

The structural steel, incorporated in the completed and accepted structure, will be paid for at the Contract unit price per hundredweight for "Structural Steel Repairs (Site No. X)."

Payment shall be for structural steel, complete in place, which price shall include removing deteriorated steel, grinding copes, gouges and cuts and straightening of steel, fabricating, furnishing, transporting, storing, erecting and installing the new repair plates, bolts with compatible nuts and washers, all welding and weld inspection, and all other materials, equipment, tools, labor and work incidental thereto.

The final cleaning and application of paint on new steel plates added as a result of the steel repair shall be paid for under the item “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)” and “Localized Paint Removal and Field Painting of Existing Steel”.

| <u>Pay Item</u>                       | <u>Pay Unit</u> |
|---------------------------------------|-----------------|
| Structural Steel Repairs (Site No. X) | cwt             |

## **ITEM #0603222A – DISPOSAL OF LEAD DEBRIS FROM ABRASIVE BLAST CLEANING**

### **Description:**

Work under this item shall include the handling, loading, packing, storage, transportation and final off-site disposal of hazardous lead debris which has been generated in conjunction with work conducted under Item 0020905A – Lead Compliance For Abrasive Blast Cleaning and Miscellaneous Tasks.

The Engineer has characterized the lead debris at the Sites as follows:

| <b><u>Site No.</u></b>                               | <b><u>TCLP Results</u></b> |
|--|----------------------------|
| <b>Site No. 3 (Bridge No. 03178)<br/>Paint waste</b> | <b>Presumed Hazardous</b>  |
| <b>Site No. 4 (Bridge No. 03179)<br/>Paint waste</b> | <b>Presumed Hazardous</b>  |

The Contractor shall comply with the latest requirements of the USEPA RCRA Hazardous Waste Regulations 40 CFR 260-274 and the DEEP Hazardous Waste Management Standards 22a-449(c).

**Hazardous lead debris shall be transported from the Project by a licensed hazardous waste transporter approved by the Department and disposed of at an EPA-permitted and Department-approved hazardous waste landfill within 90 days from the date of generation.**

The Contractor must use one or more of the following Department-approved disposal facilities for the disposal of hazardous waste:

|   |  |
|---|--|
| Clean Earth of North Jersey, Inc., (CENJ)<br>115 Jacobus Avenue, South Kearny, NJ 07105<br>Phone: (973) 344-4004; Fax: (973) 344-8652 | Clean Harbors Environmental Services, Inc.<br>2247 South Highway 71, Kimball, NE 69145<br>Phone: (308) 235-8212; Fax: (308) 235-4307     |
| Clean Harbors of Braintree, Inc.<br>1 Hill Avenue, Braintree, MA 02184<br>Phone: (781) 380-7134; Fax: (781) 380-7193                  | Clean Harbors - Spring Grove Facility<br>4879 Spring Grove Ave., Cincinnati, OH 45232<br>Phone: (513) 681-6242; Fax: (513) 681-0869      |
| Triumvirate<br>(EnviroSafe Corporation Northeast)<br>(Jones Environmental Services (NE), Inc.)<br>263 Howard Street, Lowell, MA 01852 | Environmental Quality US Ecology Detroit, Inc.<br>1923 Frederick Street, Detroit, MI 48211<br>Phone: (800) 495-6059; Fax: (313) 923-3375 |

|   |   |
|---|---|
| Stericycle<br>(Republic Environmental Systems)<br>2869 Sandstone Drive, Hatfield, PA 19440<br>Phone: (215) 822-8995; Fax: (215) 997-1293                          | Stericycle<br>(Northland Environmental, Inc.)<br>(PSC Environmental Systems)<br>275 Allens Avenue, Providence, RI 02905<br>Phone: (401) 781-6340; Fax: (401) 781-9710 |
| Environmental Quality Company:<br>Wayne Disposal Facility<br>49350 North I-94 Service Drive<br>Belleville, MI 48111<br>Phone: (800) 592-5489; Fax: (800) 592-5329 | ACV Enviro (Cycle Chem)<br>217 South First Street, Elizabeth, NJ 07206<br>Phone: (908) 354-0210; Fax (908) 355-0562   |
| Envirite of PA (US Ecology)<br>730 Vogelsong Road, York, PA 17404<br>Phone: (717) 846-1900; Fax: (717) 854-6757   | Stablex, Canada, Inc.<br>760 Industrial Blvd. Blainville, Quebec J7C3V4<br>Phone: (451) 430-9230; Fax: (451) 430-4642   |

### Construction Methods:

#### A. Submittals

The Contractor shall submit in writing, (1) a letter listing the names of the hazardous waste disposal facilities (from the above list) that the Contractor will use to receive hazardous material from this Project, and (2) a copy of each facility's acceptance criteria and sampling frequency requirements.

No facility may be substituted for the one(s) designated in the Contractor's submittal without the Engineer's prior approval. If the material cannot be accepted by any of the Contractor's designated facilities, the Department will supply the Contractor with the name(s) of other acceptable facilities.

#### B. EPA ID Number:

**Prior to the generation of any hazardous waste on a contiguous per site basis**, the Contractor shall notify the Engineer of its selected hazardous waste transporter and disposal facility. The Contractor must submit to the Engineer (1) the transporter's current US DOT Certificate of Registration and (2) the transporter's current Hazardous Waste Transporter Permits for the State of Connecticut, the hazardous waste destination state and any other applicable states. The Engineer will then obtain on a contiguous per site basis a temporary EPA Generators ID number for the site that he will forward to the Contractor. Temporary EPA ID numbers are good for six months from the date they are issued and can be extended once, for a maximum of six months and can't be used for longer than one year. The Contractor will be responsible for notifying the Engineer when an extension is needed. Any changes in transporter or facility shall be immediately forwarded to the Engineer for review.

C. General:

Handling, storage, transportation and disposal of hazardous waste materials generated as a result of execution of this project shall comply with all Federal, State and Local regulations including the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260-271), the CTDEEP Hazardous Waste Regulations (22a-209 and 22a-449(c)), and the USDOT Hazardous Materials Regulations (49 CFR Part 171-180).

All debris shall be contained and collected daily or more frequently as directed by the Engineer, due to debris buildup. Debris shall be removed by HEPA vacuum collection. Such debris, abrasive blast residue, rust and paint chips shall be stored in leak-proof storage containers in the secured storage site, or as directed by the Engineer. The storage containers and storage locations shall be reviewed by the Engineer and shall be located in areas not subject to ponding.

All storage containers (roll offs or drums) shall have a protective liner and removable lid. These containers shall not have any indentations or damage that would allow seepage of the contained material.

If 55 gallon barrels are used, staging is required: 55 gallon barrels shall be stored together in two rows of five. The Contractor shall maintain a minimum lane clearance of 36 inches between each (barrel lot of ten).

The Contractor shall maintain a secure storage site, which shall be large enough to handle all debris. The Contractor shall store debris only in the secured storage site. All lead debris shall be conveyed to the secured storage site at the conclusion of the work shift. The Contractor shall account for all debris conveyed to the secured storage site and all debris transported from the project for disposal.

The secure storage site shall consist of an 8-ft. high fenced-in area with a padlocked entrance. Storage containers shall not be used on the project until and unless they have been reviewed and approved by the Engineer. Storage containers and sites shall be located so as not to cause any traffic hazard. Container storage sites shall be in areas that are properly drained and runoff water shall not be allowed to pool and shall be out of the 500-year flood plain. The containers shall be placed on pallets or other approved material and not directly on the ground.

Storage containers shall be closed and covered with a waterproof tarpaulin at all times except during placement, sampling and disposal of debris.

The Engineer previously analyzed a representative sample of the lead debris prior to generation and found leachable lead above RCRA-hazardous levels. A copy of the analytical results can be supplied to the Contractor at the time of waste disposal upon request.

Materials other than direct paint related debris which are incidental to the paint removal work activities (tarps, poly, plywood, PPE, gloves, decontamination materials, etc) which may be contaminated with lead, shall be stored separately from the direct paint debris, and shall be

sampled by the Engineer for waste disposal characterization testing. Such materials characterized as hazardous shall be handled/disposed of as described herein, while materials characterized as non-hazardous shall be disposed of as non-hazardous, non-RCRA lead waste under Item 0020905A.

Project construction waste materials unrelated to the paint removal operations shall NOT be combined/stored with paint debris waste and/or incidental paint removal materials as they are not lead contaminated and shall NOT be disposed of as hazardous waste. The Engineer's on-site Inspectors shall conduct inspections to verify materials remain segregated.

Hazardous waste materials are to be properly packed and labeled for transport by the Contractor in accordance with EPA, CTDEEP and USDOT regulations. The disposal of debris characterized as hazardous waste shall be completed within 90 calendar days of the date on which it began to be accumulated in the lined containers. Storage of containers shall be in accordance with current DEEP/EPA procedures.

The Contractor shall label containers with a 6-inch square, yellow, weatherproof, Hazardous Waste sticker in accordance with USDOT regulations.

The Contractor shall obtain and complete all paperwork necessary to arrange for material disposal, including disposal facility waste profile sheets. It is solely the Contractor's responsibility to co-ordinate the disposal of hazardous materials with its selected treatment/recycling/disposal facility(s). Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and treatment/recycling/disposal of the materials in accordance with all Federal and State regulations. **No claim will be considered based on the failure of the Contractor's disposal facility(s) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

The Contractor shall process the hazardous waste such that the material meets with the requirements of the selected treatment/disposal facility, including specified size and dimension. Refusal on the part of the treatment/disposal facility to accept said material solely on the basis of non-conformance of the material to the facility's physical requirements is the responsibility of the Contractor and no claim for extra work shall be accepted for reprocessing of said materials to meet these requirements.

All DOT shipping documents, including the Uniform Hazardous Waste Manifests utilized to accompany the transportation of the hazardous waste material shall be prepared by the Contractor and reviewed/signed by an authorized agent representing ConnDOT, as Generator, for each load of hazardous material that is packed to leave the site. The Contractor shall not sign manifests on behalf of the State as Generator. The Contractor shall forward the appropriate original copies of all manifests to the Engineer the same day the material leaves the Project site.

Materials not related to lead paint removal and/or characterized as non-hazardous waste shall NOT be shipped for hazardous waste disposal in accordance with USEPA RCRA hazardous waste minimization requirements.

A load-specific certificate of disposal, signed by the authorized agent representing the waste disposal facility, shall be obtained by the Contractor and promptly delivered to the Engineer for each load.

#### D. Material Transportation

Materials determined to be hazardous shall be transported in compliance with the applicable federal/state regulations. Transport vehicles shall have a protective liner and removable lid, shall not have any indentations or damage and must be free from leaks, and discharge openings must be securely closed during transportation.

In addition to all pertinent Federal, State and local laws or regulatory agency policies, the Contractor shall adhere to the following precautions during the transport of hazardous materials off-site:

- All vehicles departing the site are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume, and contents of materials carried. Vehicles shall display the proper USDOT placards for the type and quantity of waste;
- No materials shall leave the site unless a disposal facility willing to accept all of the material being transported has agreed to accept the type and quantity of waste;
- Documentation must be maintained indicating that all applicable laws have been satisfied and that the materials have been successfully transported and received at the disposal facility; and,
- The Contractor shall segregate the waste streams (i.e. concrete, wood, etc.) as directed by the receiving disposal facility.

Any spillage of debris during disposal operations during loading, transport and unloading shall be cleaned up in accordance with EPA 40 CFR 265 Subparts C & D, at the Contractors expense.

The Contractor is liable for any fines, costs or remediation costs incurred as a result of their failure to be in compliance with this Item and all Federal, State and Local laws.

#### D. Equipment Decontamination:

All equipment shall be provided to the work site free of gross contamination. The Engineer may prohibit from the site any equipment that in his opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the site

shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project that has not been thoroughly decontaminated prior to arrival.

The Contractor shall furnish labor, materials, tools and equipment for decontamination of all equipment and supplies that are used to handle Hazardous Materials. Decontamination shall be conducted at an area designated by the Engineer and shall be required prior to equipment and supplies leaving the Project, between stages of the work.

The Contractor shall use dry decontamination procedures. Residuals from dry decontamination activities shall be collected and managed as Hazardous Materials. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

#### E. Project Closeout Documents:

The Contractor shall provide the Engineer, within 30 days of completion of the work, a compliance package; which shall include the following:

1. Copies of completed Hazardous Waste Manifests (signed by authorized disposal facility representative)
2. Completed Waste Shipment Records/Bills of Lading (signed by authorized disposal facility representative)
3. Completed Weigh Bills (indicating each loads net weight).

#### **Method of Measurement:**

The work of "DISPOSAL OF LEAD DEBRIS FROM ABRASIVE BLAST CLEANING" shall be measured for payment as the actual net weight in tons delivered to the treatment/disposal facility. Such determinations shall be made by measuring each hauling vehicle on the permanent scales at the treatment/disposal facility. Total weight shall be the summation of weigh bills issued by the facility specific to this project and waste stream.

The disposal of any lead painted debris, originally anticipated to be hazardous, but determined by characterization sampling not to contain hazardous concentrations of lead will not be measured for payment under this Item. Disposal of these materials will be handled in accordance with the provisions of Item 0020905A.

The collection and treatment/disposal of materials and liquids generated during equipment decontamination activities and cleaning/disposal of personal protective equipment (PPE) shall be considered incidental to work under this Item and will not be measured for separate payment. Materials incidental to the construction, which become contaminated due to the lead debris removal,

such as but not limited to, gloves, coveralls, tarps and filters shall be disposed of in accordance with this specification. These incidental materials shall be kept separate from the debris. These materials will not be measured for payment, but will be included in the general cost of the work.

**Basis of Payment:**

This work shall be paid for at the contract unit price per ton, which shall include the processing, loading, storage (including containers) and transportation of said materials from the temporary storage area to the final to the treatment/disposal facility; the treatment/disposal or recycling of said materials; the preparation of all related paperwork including manifests; fees; and all equipment, materials, tools, labor and work incidental to loading, transporting, treating/recycling and disposal of materials.

No separate payment shall be made under this Item for the on-site processing, transportation and treatment/disposal of materials not found to be hazardous based upon characterization sampling results.

No separate payment shall be made for the disposal of wastes generated in conjunction with equipment decontamination or the disposal of personal protective equipment (PPE). The cost of such disposal shall be considered incidental to the work under this Item.

Final payment will not be approved until completed copies of all Manifest(s) and Bills of Lading signed by an authorized disposal facility representative and all associated weight bills indicating each loads net weight have been provided to the Engineer. Once completed and facility-signed copies of all Manifest(s), Bills of Lading and associated weigh bills have been received in their entirety, the Engineer will review and approve the release of final payment to the Contractor.

**Pay Item**

**Pay Unit**

Disposal of Lead Debris from  
Abrasive Blast Cleaning

Ton

## **ITEM #0603432A – STRUCTURAL PIN ASSEMBLY (STAINLESS STEEL)**

**Section 6.03** –Structural Steel is amended and supplemented as follows:

**Article 6.03.01 – Description:** *Supplement with the following:*

Work under this item shall include replacing the existing steel pins and hinge plates at Site No. 1 & 2 and pins, washers, and hanger plates at the fixed and expansion pin & hanger assemblies at Site No. 3 & 4. No work shall be performed without the prior approval of the Engineer.

**Article 6.03.02 – Materials:** *Supplement with the following:*

### **Site No. 1 & 2**

Pin and hinge plates shall meet ASTM A276 with a yield point of 50 ksi.

Replacement bolts fastening the hinge plates shall meet ASTM A193 B8 Class 2 (AISI 304) with a yield point of 65 ksi. Nut shall meet ASTM A194 Grade 8. Washers shall meet AISI 304.

### **Site No. 3 & 4**

Pins at the pin & hanger assemblies shall be annealed stainless steel and meet ASTM A276 UNS S21800 (Nitronic 60) with a yield point of 50 ksi. All pins shall be ultrasonically tested prior to installation.

Link plates at the pin & hanger assemblies shall meet ASTM A276 UNS S21800 (Nitronic 60) with a yield point of 50 ksi. All link plates shall be ultrasonically tested prior to installation.

Nuts and stainless washers shall be Type 316 stainless steel and conform to ASTM A276. Cotter pins shall be stainless steel and meet ANSI B18.8.1.

Nylon washers shall conform to ASTM D4066.

Actual nonmetallic bushing thickness per manufacturer's specifications, 1/4" is approximate. Bushings shall be a self-lubricating filament wound epoxy matrix backed Duralon Bearing, metal backed Fiber Glide Bearing or equivalent. No primer or grease shall be allowed on bushings. Bushings shall be suitable for dynamic loads of 20,000psi.

**Article 6.03.03 – Construction Methods:** *Supplement with the following:*

Utilizing a temporary support system, the existing pins, hanger plates and fixed and expansion pin & hanger assemblies shall be replaced as shown on the plans. Care shall be taken so as not to damage any steel that is intended for reuse in the proposed construction. Any damage shall be repaired by the Contractor to the satisfaction of the Engineer at no additional cost to the State.

The Contractor shall prepare and submit Shop Drawings of the proposed pins, hanger plates, nuts

and stainless steel and nylon washers to the Engineer for approval. No work shall be performed prior to the approval of Shop Drawings. The Contractor shall prepare and submit Working Drawings of the proposed construction to include a sequence of the work and proposed means and methods to assure the assembly shall be structurally sound at all times during this work.

The existing pins, hanger plates, nuts and washers shall be disposed offsite by the Contractor.

**Article 6.03.04 – Method of Measurement:** Supplement with the following:

This work will be measured for payment by the actual number of pin or pin and hanger replacement locations completed and accepted. Removal and disposal of existing pins, hinge plates and fixed and expansion pin and hanger assemblies will not be measured for payment.

**Article 6.03.05 – Basis of Payment:** Supplement with the following:

This work will be paid at the contract unit price each for “Structural Pin Assembly (Stainless Steel)” completed and accepted which price shall include replacing the existing pins, hanger plates and nylon washers at the pin and hanger assemblies at locations designated on the plans. It shall also cover the work to temporarily remove and re-install pin plates, beveled plates and all materials, tools, equipment, labor and work incidental thereto.

The surface preparation, removal of paint, cleaning and field painting at the girder ends in the vicinity of the pin & hanger and hinge assemblies shall be paid under the item “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)”.

Temporary support system required to accomplish the replacement of pin and hanger and hinge assemblies shall be paid for under the item “Jacking Existing Superstructure (Site No. X)”.

| <u>Pay Item</u>                           | <u>Pay Unit</u> |
|---|-----------------|
| Structural Pin Assembly (Stainless Steel) | ea.             |

**ITEM #0603479A – ABRASIVE BLAST CLEANING AND FIELD PAINTING OF BEAM ENDS (SITE NO. 1)**

**ITEM #0603480A – ABRASIVE BLAST CLEANING AND FIELD PAINTING OF BEAM ENDS (SITE NO. 2)**

**ITEM #0603481A – ABRASIVE BLAST CLEANING AND FIELD PAINTING OF BEAM ENDS (SITE NO. 3)**

**ITEM #0603482A – ABRASIVE BLAST CLEANING AND FIELD PAINTING OF BEAM ENDS (SITE NO. 4)**

**Description:** Work under this item shall consist of surface preparation and field painting of steel components with a **2-coat system** as shown on the plans, as directed by the Engineer and in accordance with these specifications.

**Components to be painted include the following: beams and girders in the vicinity of pin and hangers and hinge pins, bolted girder repairs and other locations as indicated on the Plans.**

Privately-owned utilities, bridge rails, stay-in-place forms, fences, elastomeric bearing pads and bronze components shall be protected from damage by surface preparation and painting operations and are not to be painted. Any damage resulting from surface preparations, containment and/or overspray from paint operations shall be repaired by the Contractor at no cost to the State.

The amount of steel to be painted under this special provision varies by bridge site and is to be determined by the Contractor based on the information contained in the plans. Bidders shall examine the structures in this Contract and shall make their own determinations as to the work involved and conditions to be encountered.

Lead paint is presumed to be present at bridge Sites 3 and 4.

**Submittals:** A minimum of 20 calendar days before starting any surface preparation and coating application work, the painting contractor shall submit the following to the Engineer for acceptance:

1. A copy of the firm's written Quality Control Program used to control the quality of surface preparation and coating application including, but not limited to, ambient conditions, surface cleanliness and profile, coating mixing, dry film thickness, and final film continuity.
2. A copy of the firm's written surface preparation and application procedures detailing the Materials and Construction Methods for both accessible and inaccessible areas. All areas are deemed accessible, except those areas specifically designated as inaccessible. The

Engineer will be the sole judge in determining the exact locations of said inaccessible areas. Inaccessible areas may include: Between back to back angles, edges of top flanges of steel members in contact with concrete, and areas of visible non-removable impacted rust. Such locations designated as inaccessible shall be coated with special materials, such as penetrating sealer or equivalent, as recommended by the Manufacturer of the selected paint system (see Materials section below for paint systems). This written program must contain a description of all the equipment that will be used for removal of laminar and stratified rust, for surface preparation, including the remediation of soluble salts, and for paint mixing and application, including stripe coating. Coating repair procedures shall be included for both accessible and inaccessible areas.

3. A detailed description of the Contractor's enforcement procedures and the authority of personnel.
4. If the application of heat is proposed for coating application purposes, provide information on the heat containment and procedures that will be used, with data sheets for the equipment. Note: If heat is used for coating operations, the heat and containment must be maintained to provide the required temperatures for the duration of the cure period.
5. Containment plans (paint removal/collection of debris, surface preparation, coating applications, coating applications with heat, etc.).
6. Proof of SSPC-QP 1 qualifications, CAS-certification(s) and QP 2 qualifications, as applicable.
7. Coating product information, including coating manufacturer, product name, application instructions, technical data, MSDS and color chips.
8. Abrasive product information, including abrasive manufacturer, product name, technical data, and MSDS.

The Contractor shall not begin any paint removal work until the Engineer has accepted the submittals. The Contractor shall not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety concerns. Acceptance of the programs does not relieve the Contractor from the responsibility to conduct the work in strict accordance with the requirements of Federal, State, or local regulations, this specification, or to adequately protect the health and safety of all workers involved in the Project and any members of the public who may be affected by the Project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

**Materials:** The materials for the coating system for this work shall meet the requirements of Section M.07.02 amended as follows:

The coating system shall be one of the following **2-coat systems**:

|                                     |                     |
|-------------------------------------|---------------------|
| Carbomastic 15                      |                     |
| Carbothane 133 LV, manufactured by: | Carboline           |
|                                     | 2150 Schuetz Road   |
|                                     | St. Louis, MO 63146 |
|                                     | (800) 848-4645      |

|                               |                     |
|-------------------------------|---------------------|
| Epoxy Mastic Aluminum II      |                     |
| HS Poly 250, manufactured by: | Sherwin Williams    |
|                               | 425 Benton Street   |
|                               | Stratford, CT 06615 |
|                               | (203) 377-1711      |
|                               | (800) 474-3794      |

|                                     |                     |
|-------------------------------------|---------------------|
| Carbomastic 90                      |                     |
| Carbothane 134 HS, manufactured by: | Carboline           |
|                                     | 2150 Schuetz Road   |
|                                     | St. Louis, MO 63146 |
|                                     | (800) 848-4645      |

All materials for the complete coating system shall be furnished by the same coating material manufacturer with no subcontracted manufacturing allowed. Intermixing of materials within and between coating systems will not be permitted. Thinning of paint shall meet the manufacturer's written recommendations. All components of the coating system and the mixed paint shall comply with the Volatile Organic Compounds (VOC) Content Limits and Emission Standards stated in the Connecticut Department of Energy and Environmental Protection's Administration Regulation for the Abatement of Air Pollution, Sections 22a-174-41 through 41a and 22a-174-20(s), respectively.

Note: If any of the above and/or following stipulated Contract specifications differ from those of the Manufacturer's recommended procedures or ranges, the more restrictive of the requirements shall be adhered to unless directed by the Engineer in writing.

The abrasive media for blast cleaning shall be recyclable steel grit.

### **Construction Methods:**

Contractor - Subcontractor Qualifications: Contractors and subcontractors doing this work are required to be certified by the SSPC Painting Contractor Certification Program (PCCP) to QP 1 entitled "Standard Procedure for Evaluating Qualifications of Painting Contractors ("Field Application to Complex Structures"). When the work involves the disturbance of lead-containing paint, the Contractor and subcontractor are also required to be certified to SSPC-QP 2 "Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint."

Contractors and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)**-certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each painting/blasting crew during blast cleaning and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand-held nozzle blast cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

Requests for extension of time for any delay to the completion of the Project due to an inactive certification will not be considered and liquidated damages will apply. In addition, if any recoat times are exceeded, the affected areas shall be abrasive blast cleaned to SSPC-SP 6 and coatings reapplied in accordance with these specifications at no additional cost to the State. At the option of the Engineer, if such a delay will adversely impact the successful and timely completion of the Project, the Department may require the Contractor to engage another SSPC certified contractor to do the painting work at the prime contractor's expense.

Quality Control Inspections: The Contractor shall perform first line, in process Quality Control (QC) inspections. The Contractor shall implement a Quality Control Program accepted by the Engineer, including written daily reports, that ensures that the work accomplished complies with these specifications. Copies of these reports shall be provided daily to the Engineer. Contractor QC inspections shall include, but not be limited to the following:

- Suitability of protective coverings and containments
- Ambient conditions
- Surface preparation (solvent cleaning, hand/power tool or abrasive blast cleaning, etc.)
- Coating application (mixing, thinning, and wet/dry film thickness)
- Recoat times and cleanliness between coats
- Coating continuity (freedom from runs, sags, overspray, dryspray, pinholes, shadow-through, skips, misses, etc.)
- Final film acceptance

The personnel managing and performing the quality control program shall be NACE Certified Coating Inspector(s) (successfully completed Sessions I, II, III and Peer Review) or must be SSPC certified BCI level 2. The personnel performing the quality control tests shall be trained in the use of the quality control instruments. Documentation of training shall be provided. These personnel shall not perform surface preparation and painting.

Test Equipment and Materials: The Contractor shall furnish the following new test equipment and materials for use by the QC Inspector: Two PTC Surface Temperature Thermometers

1. Psychron 566 Psychrometer (Battery Operated) with two sets of batteries or a Bacharach Sling Psychrometer
2. U.S. Weather Bureau Psychrometric Tables
3. Hypodermic Needle Pressure Gage for nozzle pressure tests.

ITEM #0603479A, 0603480A,  
0603481A, 0603482A

4. SSPC Visual Standards VIS 1, VIS 3, and/or VIS 4, as applicable.
5. Testex Spring Micrometer
6. Testex Press-O-Film Replica Tape, one roll (100 pieces) each of coarse and extra-coarse per bridge span, or as specified by the Engineer.
7. Wet film thickness gage
8. PosiTest, Mikrotest or Elcometer Dry Film Thickness Gauge (FM)
9. SSPC Type 2 Dry Film Thickness Gauge per PA2
10. NIST (NBS) Calibration Standards Range: 0 – 39 mils

Quality Assurance Inspections: The Engineer may conduct Quality Assurance (QA) observations of any or all phases of the work. The presence or activity of Engineer inspections in no way relieves the Contractor of the responsibility to provide all necessary daily Quality Control inspections of its own and to comply with all requirements of this Specification.

The Contractor shall facilitate the Engineer's inspections as required, including allowing ample time for the inspections and providing suitable lighting (50 foot candles minimum at the surface as defined later in this specification). The Contractor shall furnish, erect and move scaffolding or other mechanical equipment to permit inspection and close observation of all surfaces to be cleaned and painted. This equipment shall be provided during all phases of the work. The Contractor shall notify the Engineer in advance of plans to remove staging used in cleaning and painting operations in order to allow for inspection. The QA inspection will be performed with the QA inspector's equipment when verifying the Contractor's test results in the field.

Safety: All Contractor activities associated with the coating work described and specified herein shall be conducted according to all applicable Federal (OSHA), State of Connecticut safety regulations and SSPC-PA Guide 3 entitled "A Guide to Safety in Paint Application."

Ambient Conditions: Surface preparation and coating application work shall only be done inside a containment enclosure as specified elsewhere in these specifications. Surface preparation or coating work shall be performed inside the containment enclosure meeting the following:

- The relative humidity is at or below 90 percent.
- The substrate is not damp or covered by frost or ice.
- The surface temperature and air temperature are between 50° F and 100° F.
- The surface temperatures of the steel and air are more than 5° F above the dewpoint temperature, as determined by a surface temperature thermometer and electric or sling psychrometer.

If the requirements of the coating manufacturer differ from the ranges provided above, comply with the most restrictive requirements unless directed otherwise by the Engineer in writing.

Protective Coverings: The Contractor shall protect property, pedestrians, vehicular, and other traffic upon, underneath, or near the bridge, and all portions of the bridge superstructure and substructure against abrasive blast cleaning damage or disfigurement from splatters, splashes, or spray of paint or paint materials. See the specification for "Class 1 - Containment and Collection of Surface Preparation Debris (Site No. X)." All coating overspray, drips and spills shall be

contained. Maintain the integrity and security of all protective coverings and containment materials throughout the entire Project.

Any paint chips, paint removal media (e.g., abrasives), coating or solvent that has escaped the Contractor's containment enclosure shall be cleaned up immediately. For bridges over water, the Contractor shall have on Site a sufficient quantity of spill containment boom and pads to contain a spill. The length of containment boom on Site shall be at least equal to twice the length of the active work site over the water.

Observed Steel Defects: If significant deficiencies, such as cracks or section losses, are found during cleaning or coating operations, the Contractor shall immediately notify the Engineer as to their extent. Significant deficiencies include the following:

- a) Cracks in any part of the superstructure
- b) Section loss more than 1/8" or section loss equal to or greater than 5 percent of flange thickness in the maximum moment areas (i.e. section loss in the middle one half of a single span structure).
- c) Section loss more than 1/4" or section loss equal to or greater than 25 percent of the flange thickness in other than the maximum moment areas (i.e. section loss up to quarter points of the middle one half of a single span structure).
- d) Section loss more than 1/8" or section loss equal to or greater than 33 percent of web thickness in the maximum shear areas (i.e. section loss within five feet of the bearing center line).

Heating Devices: The Contractor may use heating devices to obtain and maintain a condition within the containment enclosure that is suitable for surface preparation and painting application, up to and including the minimum time to recoat, or minimum time to dry for service or topcoat. Heating devices shall be limited to gas or oil-fired indirect air heaters in which the combustion products are discharged separately from the forced airstream to an area outside the containment enclosure. The heating devices must be configured so as not to form condensation on cold surfaces or cause rust-back and must be automatically controlled. Information describing the proposed heating devices and the proposed heating procedures shall be provided a minimum of 20 days in advance for Engineer acceptance.

Lighting Requirements: A minimum illumination level of 20 foot-candles shall be provided throughout the inside of the containment enclosure during surface preparation and coating application work. A minimum illumination level of 50 foot-candles shall be provided at the location of the specific work task and for inspection. All lighting fixtures and related connectors located inside the containment enclosure must be explosion proof and UL listed.

Material Storage: The Contractor shall provide a suitable facility for the storage of paint that complies with all Federal and State laws and regulations.

This facility shall provide protection from the elements and ensure that the paint is stored at temperatures within the more stringent of (1) the manufacturer's written recommended temperatures, or (2) between 40° F and 100° F. If paint application takes place in conditions that require heating of the containment, then the temperature of the stored paint shall be maintained at a similar temperature. Storage of paint shall be in reasonable proximity to the painting locations. The Engineer shall be provided access to the stored paint for inspection and to witness removal of the materials. The Contractor's facility for the storage of paint shall be subject to the approval of the Engineer.

Equipment: All equipment used in surface preparation and removal of debris, such as hoses, hoppers, recycling and vacuum machines that the Contractor brings to the Site, shall be clean and free of any prior debris.

Spray equipment, brushes and rollers used in application of coatings shall be sized sufficiently and be in proper working order to accomplish the work according to the manufacturer's written recommendations.

Compressed Air: All compressed air sources shall have oil and moisture separators, attached and functional, and properly designed and sized. The compressed air sources shall deliver air to the blast nozzle, for blowing down the surfaces, or for conventional spray application that is free of oil and moisture and of sufficient pressure to accomplish the associated work efficiently and effectively. The tanks on the air compressor and moisture separator shall be drained at the end of each workday. The compressed air source shall produce a minimum pressure of 90 psi at the nozzle during abrasive blast cleaning.

The Contractor shall verify that the compressed air is free of moisture and oil contamination in accordance with the requirements of ASTM D4285. The tests shall be conducted at least every four hours for each compressor system in operation. Sufficient freedom from oil and moisture is confirmed if soiling or discoloration is not visible on the paper. If air contamination is evidenced, the Contractor shall change filters, clean traps, add moisture separations or filters, or make other adjustments as necessary to achieve clean, dry, air.

Test Sections: Prior to surface preparation, the Contractor shall prepare a test section(s) on each structure to be painted in a location(s) that the Engineer considers to be representative of the existing surface condition and steel type for the structure as a whole. The test section(s) shall be prepared using the same equipment, materials and procedures as the production operations. The Contractor shall prepare the test section(s) to the specified level according to the appropriate

SSPC written specifications and visual standards. The written requirements of the specification prevail in the event of a conflict with the SSPC visual standards. Only after a test section area has been approved shall the Contractor proceed with surface preparation operations. The test section(s) shall cover approximately 10 square feet each. Additional compensation will not be allowed the Contractor for preparation of test sections.

For the production cleaning operations, the specifications and written definitions, the test section(s), and the SSPC visual standards shall be used in that order for determining compliance with the Contract requirements.

Surface Preparation:

1 – Laminar and Stratified Rust: All laminar and stratified rust or corrosion products that have formed on any area of the existing steel surfaces and accessible rust formed along edges of connected plates or shapes of structural steel shall be removed. The tools used to remove these corrosion products shall be identified in the submittals and accepted by the Engineer. If the surface preparation or removal of rust results in nicks or gouges, the work will be suspended. The Contractor shall demonstrate that the necessary adjustments have been made to prevent a reoccurrence of the damage prior to resuming work.

2 – Commercial Blast Cleaning (SSPC-SP 6): Steel surfaces, including all new steel plates installed for structural repairs, shall be cleaned by the specified methods described in the SSPC Steel Structures Painting Manual, Volume 2 - Systems and Specifications, latest edition. The structural steel shall be abrasive blast cleaned according to SSPC-SP 6 “Commercial Blast Cleaning.” Before and after blast cleaning, all dissolvable foreign matter, such as oil, grease, and dust shall be removed by wiping or scrubbing the surface with rags or brushes wetted with solvent in accordance with the provisions SSPC-SP 1 “Solvent Cleaning.” Clean solvent and clean rags or brushes shall be used for the final wiping.

All foreign materials such as dirt, dust, rust scale, sand, bird droppings, and all materials loosened by abrasive blasting operations shall be completely removed by vacuuming before any painting operations are begun.

Following completion of the initial abrasive blast cleaning operations, the Contractor shall proceed with installation of new structural steel plates where required by the plans and as directed by the Engineer. The plates shall be delivered already coated with a zinc primer coat. After the plates have been welded in place and accepted, the new plates shall be coated with the same paint system used for the existing steel.

The cleaned surface shall be accepted by the Engineer before any painting. If the surface is determined to meet the requirements of SSPC-SP 6, painting operations can commence. The base coat shall be applied to the steel before the end of the day that preparation was performed and before the formation of any flash rusting or rerusting of the steel. Flash rusting or rerusting of the surface is unacceptable and requires additional blast cleaning prior to painting.

Failure of the Contractor to prepare and clean the surfaces to be painted according to these specifications shall be cause for rejection by the Engineer. All surfaces that are rejected shall be recleaned to the satisfaction of the Engineer according to these specifications, at no additional cost to the State.

3 – Steel Grit Abrasive Mix: The recyclable steel grit abrasive mix shall be maintained and monitored such that the final surface profile is within the range specified elsewhere in these specifications.

Before each reuse, the recyclable steel grit abrasive shall be cleaned of millscale, rust, paint, and other contaminants by an abrasive reclaimer.

On a weekly basis during blast cleaning operations, the Contractor shall verify that the recycled steel grit abrasives meet the requirements of SSPC-AB 2. If the abrasive fails the testing, all abrasive blast cleaning operations shall be suspended. The abrasive reclaimer shall be repaired and another abrasive sample will be required for testing after grit recovery and reclassification. For test results within the acceptable limits, abrasive blast cleaning may resume. Test results outside of the acceptable limits will require additional equipment repairs or replacement at no cost to the State. If additional repairs were performed, another sample will be required for testing after grit recovery and reclassification. If the test results continue to remain outside of the acceptable limits, the Contractor shall replace the abrasive reclaimer at no cost to the State.

4 - Surface Profile: The specified height of the steel surface profile shall be according to the manufacturer's written instructions and shall be uniform. Verification of the profile height will be done with Testex Replica Tape. A surface profile correction factor will be measured according to SSPC-PA 2, Section 2.2.4 with the dry film thickness gauge.

#### Painting Operation:

1 - General: All coatings shall be supplied in sealed containers bearing the manufacturer's name, product designation, batch number and mixing/thinning instructions. Leaking containers shall not be used. Storage, opening, mixing, thinning and application of coating materials shall be accomplished in strict accordance with the written requirements and procedures published by the respective coating material manufacturer and supplier. In the event of a conflict, the Contractor shall notify the Engineer in writing, and unless directed otherwise in writing, the requirements of this specification shall prevail. The Contractor shall always have at the Project Site the current copies of all material safety data sheets (MSDS), technical data, recommendations and procedures published by the coating manufacturer for the coating materials.

**2 - Paint Mixing and Thinning:** Thinning shall be performed only to the extent allowed by the manufacturer's written instructions, and only with the manufacturer's approved thinner. In no case shall thinning be permitted that would cause the coating to exceed the local VOC restrictions. For multiple component paints, only complete kits shall be mixed and used. Partial mixing is not allowed.

The ingredients in the containers of paint shall be thoroughly mixed by mechanical power mixers in the original containers, or as directed by the manufacturer, before use or mixing with other containers of paint. The paint shall be mixed in a manner that will break up all lumps, completely disperse pigment and result in a uniform composition. Paint shall be carefully examined after mixing for uniformity and to verify that no unmixed pigment remains on the bottom of the container. Excessive skinning or partial hardening due to improper or prolonged storage will be cause for rejection of the paint, even though it may have been previously inspected and accepted.

Multiple component coatings shall be discarded after the expiration of the pot life. Single component paint shall not remain in spray pots, painter's buckets or similar containers overnight. It shall be stored in a covered container and remixed before use.

The Engineer reserves the right to sample field paint (individual components and/or the mixed material) and have it analyzed. If the paint does not meet the product requirements due to excessive thinning or because of other field problems, the coating shall be removed from that section of the structure and replaced as directed by the Engineer.

**3 – Methods of Application:** All applicators of the specified coating material shall show proficiency on a test panel, or a portion of the structure as selected by the Engineer, to the satisfaction of the Engineer before commencing full-scale application.

The preferred method for coating application shall be by airless spray equipment. For striping and for application in areas where complex shapes or tight clearances will not allow spray application, the Contractor shall apply the coating material by appropriately designed and constructed rollers and brushes.

**4 – Recoat Times:** The recoat time of each coat of paint shall not deviate from the written recommendation of the manufacturer or the times specified in these specifications, complying with the most restrictive requirements unless directed otherwise by the Engineer in writing. If any individual time is exceeded, the affected areas shall be abrasive blast cleaned to SSPC-SP 6 and coatings reapplied in accordance with these specifications at no additional cost to the State.

**5 – Film Continuity:** All applied coatings shall exhibit no running, streaking, sagging, wrinkling, holidays, pinholes, top coat color or gloss variation, or other film defects. Failure of the Contractor to apply coatings that are free of film defects shall be cause for rejection by the Engineer. All coatings rejected shall be repaired to the satisfaction of the Engineer, at no additional cost to the State. Before doing any coating repair work, the Contractor shall submit to the Engineer for approval the procedures that will be used to repair the coating.

**6 - Technical Advisor:** It is mandatory that the Contractor obtain the services of a qualified technical advisor employed by the coating manufacturer. This advisor shall be familiar with the technical properties of the coating products and proper application methods. The technical advisor shall assist the Engineer and the Contractor in establishing correct application methods for the complete coating system. He/she shall be present at the work Site before the opening of the material containers and shall remain at the Site until the Engineer is satisfied that the Contractor's personnel have mastered the proper handling, mixing and application of the material. The Engineer may call the technical advisor back to the Site if there are concerns that the Contractor is not handling, mixing or applying the material correctly.

**7 - Containment Plan:** For each individual Site, the Contractor shall submit a plan of containment to the Engineer for acceptance. The plan shall be submitted twenty days before commencing painting operation. The minimum containment enclosure for the intermediate and top coat shall meet the requirements of SSPC Guide 6, Class 1A and the following. Components of the containment system must be made from flame retardant materials. Tarpaulin material shall be clean and impermeable to air and water. Joints shall be fully sealed except for entryways. Entryways shall use multiple flap overlapping door tarps to minimize dust escape through the entryway. All mists or dust shall be filtered with collection equipment. For truss bridges a ceiling shall also be included.

**8 - Application:**

**2-COAT SYSTEM:**

**A - Primer Coat Application:** All prepared surfaces shall be cleaned by vacuuming to remove dust, remaining debris, and other surface contaminants before coating. Such surfaces shall then be sprayed, brushed or rolled within the specified abrasive blast cleaning containment enclosure before the end of the day or before any visible rust-back occurs. If rust-back occurs, affected surfaces shall be recleaned to the satisfaction of the Engineer according to these specifications, at no additional cost to the state. All surfaces shall receive 1 coat of the primer coat. Temperature ranges (both steel and air) shall be the more restrictive of that specified in the Manufacturer's written application instructions or between 50° F. to 100° F., unless directed otherwise by the Engineer in writing. The dry film thickness shall be according to the Manufacturer's written instructions. The primer coat shall be of a contrasting color to the topcoat color. The dry film thickness will be checked for compliance per the guidelines of SSPC-PA 2.

All plate and shape edges, plate seams, back to back angle seams, pitted steel, and other sharp discontinuities shall be hand-stripped with a brush in the longitudinal direction with the primer coat. Bolted connections shall also have all bolt heads and nuts hand-stripped in a circular brush motion with the primer coat material. Stripe coats shall be applied before or after the full primer coat application. The primer coat material used for hand-stripping shall be tinted to distinguish it from material used for the full primer coat application.

**B - Top Coat Application:** After the primer coat has cured per the Manufacturer's written recommendations (not to exceed 10 days), all previously coated surfaces shall receive the top coat. The cured and dry primer coat shall be clean and free of all surface and embedded contamination and dry-spray. If it is not clean and free of all contamination, and dry-spray, the surfaces shall be cleaned by using clean rags or brushes to water wipe, solvent wipe, or detergent wash and rinse. Power washing is not allowed. Temperature ranges (both steel and air) shall be the more restrictive of that specified in the Manufacturer's written application instructions or between 50° F. to 100° F., unless directed otherwise by the Engineer in writing. The dry film thickness shall be according to the Manufacturer's written instructions.

**9 – Painting of New Steel:** All new steel shall be painted with the same coating system selected for use at the beam ends, unless permitted otherwise in writing. After the new steel has been fabricated, the steel shall be painted with the primer coat after preparation of the steel surfaces in accordance with the relevant requirements of this special provision including abrasive blast cleaning. All paint that is damaged by field welding operations or by any other operation shall be removed, the area cleaned to the satisfaction of the Engineer, and the affected areas repainted with the primer coat. The new steel shall then be painted with the rest of the paint system.

**Method of Measurement:** This item, being paid for on a lump sum basis for each bridge Site, will not be measured for payment.

**Basis of Payment:** This work will be paid for at the Contract lump sum price for “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X),” which price shall include all materials, equipment, abrasive blast cleaning and surface preparation, painting, coating of inaccessible areas, overspray containment enclosure, heating devices, tools, labor, and services of the technical advisor. No direct payment will be made for the cost of storage or hauling the paint and other materials to and from the bridge Site, but the cost thereof shall be included in the lump sum price as noted above.

The containment and collection of surface preparation debris shall be paid for under the item “Class 1 - Containment and Collection of Surface Preparation Debris (Site No. X).”

Disposal of spent abrasive contaminated by lead shall be paid for under the item, "Disposal of Lead Debris from Abrasive Blast Cleaning."

| Pay Item   | Pay Unit |
|--|----------|
| Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X) | l.s.     |

**ITEM #0603563A – CLASS 1 CONTAINMENT AND COLLECTION OF SURFACE PREPARATION DEBRIS (SITE NO. 1)**

**ITEM #0603564A – CLASS 1 CONTAINMENT AND COLLECTION OF SURFACE PREPARATION DEBRIS (SITE NO. 2)**

**ITEM #0603714A – CLASS 1 CONTAINMENT AND COLLECTION OF SURFACE PREPARATION DEBRIS (SITE NO. 3)**

**ITEM #0603715A – CLASS 1 CONTAINMENT AND COLLECTION OF SURFACE PREPARATION DEBRIS (SITE NO. 4)**

**Description:** Work under this item shall consist of furnishing and erecting SSPC Guide 6 Class 1 containment enclosures with negative air pressure as required to contain and collect debris resulting from the removal of coatings in the preparation of steel surfaces for painting. Also included are the vacuum collection and the storage of debris in suitable containers.

The containment and collection of debris shall be done in strict conformance with current Federal Environmental Protection Agency (EPA) and Connecticut Department of Energy and Environmental Protection (DEEP) regulations.

**Materials:** Materials and equipment shall be of satisfactory quality to perform the work and shall not be used on the Project until and unless they have been reviewed and accepted by the Engineer.

Rigid walls for the containment enclosure shall be comprised of plywood panels or corrugated panels of steel, aluminum or reinforced fiberglass. Flexible containment walls constructed of fire retardant tarpaulin material shall be impermeable to air and water.

Fifty Five (55) gallon barrels with resealable lids, or lined storage containers sized for the job shall be leakproof; shall conform to the Code of Federal Regulations Title 49, Chapter 1, Paragraph 173.510A (1), (5), and Paragraph 178.118; and shall not be used on the Project until and unless they have been reviewed and accepted by the Engineer.

In meeting the requirements of these specifications, the Contractor shall supply portable battery-operated manometers with a pressure range of -1.00 to 10.00 in increments of 0.01 inches of water and a velocity range of 50 to 9990 feet per minute; and one or more portable lightmeters with a scale of 0.0-50.0 foot candles.

**Construction Methods:** The Contractor shall proceed with one of the following containment methods:

A. Containment enclosure with a suspended platform, or

B. Containment enclosure without a suspended platform.

**A. Containment enclosures with a suspended platform:**

At least two (2) months prior to any abrasive blast cleaning activities, the Contractor shall submit to the Department ten (10) complete copies of detailed working drawings and calculations prepared and stamped by a Professional Engineer licensed in Connecticut, which drawings shall detail as described below, the proposed methods for such activities. The Contractor shall not commence with containment enclosure erection and abrasive blast cleaning until and unless the working drawings have been reviewed and accepted by the Engineer, and shall proceed with such work only within accepted containment enclosures.

The working drawings shall include the following:

1. A construction plan and drawings detailing proposed coating removal operations, abrasive debris classification and separation, removal and transport of waste to a secure storage site.
2. A plan and drawings detailing the proposed containment enclosure, including details of the following:
  - A. Rigid, solid floor or platform.
  - B. Containment walls with rigid and flexible materials.
  - C. Rigid supports and bracing for the floor and wall panels, rigid or flexible supports and bracing for flexible walls.
  - D. Calculations including localized overstress conditions, member stresses, H.S. load rating and maximum dead and live load imposed on the bridge by the containment enclosure, grit blasting/recycling equipment and HVAC equipment.
  - E. Maximum allowable load for the floor/platform.
  - F. Wind load and wind stresses imposed on the bridge by the containment enclosure shall be calculated and submitted.
  - G. Airflow and air re-circulation within the enclosure including a minimum negative pressure of 0.03 inches of water column (W.C.) relative to external ambient air and calculations. Airflow shall meet the SSPC Guide 6 requirements of 100 feet/minute cross draft and 50 feet/minute downdraft and the OSHA Ventilation Standards. The maximum cross sectional area for airflow within the enclosure shall be 400 square feet.
  - H. Connections to the bridge, i.e., clamps, rollers. (Note: Welding and bolting is not allowed.) Each connection to the bridge shall be designed by the Contractor's professional engineer, including the locations of all necessary load cells to verify compliance with the containment drawings and allowable containment construction loads. A digital load indicator shall be connected to the bridge connection load cells and be located in an area accessible to the Engineer. The load cell shall be capable of storing peak load readings.
  - I. Auxiliary stationary source lighting.
  - J. Dust collection and filtration equipment, including the equipment data sheets and airflow capacity.
  - K. Air intake points including filters, louvers, baffles, etc.
  - L. Entrance/Exit compartment completely sealed with airlocks.
  - M. Location of equipment and impact on traffic.

- N. Elevation view of the containment enclosure with indications of any encroachments on the surroundings. The bridge vertical clearance shall be maintained throughout the Project.

NOTE: The structure loading for containment design shall be in accordance with AASHTO using HS-20 loads. The allowable overstress for all conditions shall not exceed 20%.

**B. Containment enclosures without a suspended platform:**

At least two (2) months prior to any abrasive blast cleaning activities, the Contractor shall submit to the Department ten (10) complete copies of detailed working drawings and calculations prepared and stamped by a Professional Engineer licensed in Connecticut, which drawings shall detail, as described below, the proposed methods for such activities. The Contractor shall not commence with containment enclosure erection and abrasive blast cleaning until and unless the working drawings have been reviewed and accepted by the Engineer, and shall proceed with such work only within accepted containment enclosures.

The working drawings shall include the following:

1. A construction plan and drawings detailing proposed coating removal operations, abrasive debris classification and separation, removal and transport of waste to a secure storage site.
2. A plan and drawings detailing the proposed containment enclosure, including details of the following:
  - A. Containment walls with rigid and flexible materials.
  - B. Rigid supports and bracing for the floor and wall panels, rigid or flexible supports and bracing for flexible walls.
  - C. Airflow and air re-circulation within the enclosure including a minimum negative pressure of 0.03 inches of water column (W.C.) relative to external ambient air and calculations. Airflow shall meet the SSPC Guide 6 requirements of 100 feet/minute cross draft and 50 feet/minute downdraft and the OSHA Ventilation Standards. The maximum cross sectional area for airflow within the enclosure shall be 400 square feet.
  - D. Connections to the bridge, i.e., clamps, rollers. (Note: Welding and bolting is not allowed.)
  - E. Auxiliary stationary source lighting.
  - F. Dust collection and filtration equipment, including the equipment data sheets and airflow capacity.
  - G. Air intake points including filters, louvers, baffles, etc.
  - H. Entrance/Exit compartment completely sealed with airlocks.
  - I. Location of equipment and impact on traffic.
  - J. Elevation view of the containment enclosure with indications of any encroachments on the surroundings. The bridge vertical clearance shall be maintained throughout the Project.

In addition, if the bridge vertical clearance is greater than 30 feet, the wind load and wind stresses imposed on the bridge by the containment enclosure shall be calculated and submitted.

Reference information on enclosures can be obtained from the following sources:

- SSPC Guide 6
- Steel Structures Painting Manual, Volume 1
- NCHRP Report 265

The containment enclosure shall be sealed across the bridge deck underside between the girders with a rigid material. The floor shall be covered with a waterproof tarpaulin attached and sealed to the enclosure wall and floor around the entire enclosure perimeter. All edges of tarpaulins shall have a 2 foot flap that clamps over the connected edges around the entire perimeter. These flaps shall be completely fastened 12 inches on center for both edges and sealed completely with the tarpaulin manufacturer's recommended tape and caulk.

All equipment placement and work shall be in strict conformance with the Contract special provisions "Prosecution and Progress" and "Maintenance and Protection of Traffic." The Contractor shall perform all work in accordance with the requirements of any permits for this Project.

During abrasive blast cleaning, if the containment enclosure is allowing debris to escape, the Contractor shall immediately stop such work until the enclosure is repaired. Any debris released from the enclosure shall be cleaned up by the Contractor immediately.

The containment enclosure shall be disassembled if the wind velocity is greater than 40 miles per hour, if it is forecast to be higher or when directed by the Engineer. However, if the wind velocity is below 40 MPH, but high enough to cause the containment enclosure to billow and emit dust, the Contractor shall immediately cease abrasive blast cleaning and, after cleaning up all the debris, disassemble the enclosure.

All debris resulting from surface preparation shall be contained and vacuum collected daily or more frequently as directed by the Engineer, due to debris buildup. Such debris, abrasive blast residue and paint chips removed by hand or power tool cleaning, shall be stored in leakproof storage containers in the secured storage site, or as directed by the Engineer. Debris storage shall be in accordance with Connecticut Hazardous Waste Management Regulations.

If 55 gallon barrels are used, staging is required: 55 gallon barrels shall be stored together in 2 rows of 5. The Contractor shall maintain a minimum lane clearance of 36 inches between each lot (10 barrels per lot).

The Contractor shall maintain a secure storage site, which shall be large enough to handle all coating debris that is collected and stored on the Project Site at any time. The Contractor shall store coating debris only in the secured storage site. During abrasive blast cleaning operations, all surface preparation debris shall be vacuum collected from the containment enclosure and removed to the abrasive recycling reclaimer unit, and the coating debris shall be conveyed to the secured storage site at the conclusion of the work shift. The Contractor shall account for all coating debris conveyed to the secured storage site and all coating debris transported from the Project to the hazardous waste treatment/disposal facility. The Contractor is responsible for the proper handling of the surface preparation debris and coating debris. All spillage shall be cleaned up immediately.

The secure storage site shall consist of an 8 foot high fenced-in area with a padlocked entrance. Storage containers shall not be used on the Project until and unless they have been reviewed and accepted by the Engineer. Storage containers and sites shall be located so as not to cause any traffic hazard. Container storage sites shall be in areas that are properly drained and runoff water shall not be allowed to pond. The containers shall be placed on pallets or other acceptable material and not directly on the ground.

Storage containers shall be closed and covered with a waterproof tarpaulin at all times except during placement, sampling, and disposal of the debris.

The Contractor shall furnish the inspector with two (2) new portable battery-operated manometers and light meters, per containment enclosure. Negative pressure verification with the portable manometers shall be done by the Engineer before and during abrasive blast cleaning and during vacuum collection of all surface preparation debris. The supplied instruments will become the property of the State upon Project completion.

Light at the steel surface within the enclosure shall be maintained by the Contractor at a minimum of 50 foot-candles as measured by a light meter. Such lighting shall be maintained throughout the surface preparation, painting, and inspection activities.

Equipment noise in excess of 90 decibels as measured at the closest residential, commercial or recreational areas, shall be lowered by the Contractor to a maximum of 90 decibels by the use of mufflers or other equipment accepted by the Engineer prior to its use for this purpose.

Any air exhausted from the containment enclosure, abrasive-recycling equipment or vacuum equipment shall be passed through a filtering system. The Contractor is responsible for the design, effectiveness and maintenance of this filtering system. No discharge of debris dust shall be allowed.

The Contractor is liable for any fines, costs, or remediation costs incurred as a result of their failure to be in compliance with this special provision and all Federal, State, and local laws.

**Method of Measurement:** Work under this item will not be measured for payment, but will be paid for at the Contract lump sum price for each site. A site shall consist of an entire bridge structure, unless otherwise noted on the plans.

**Basis of Payment:** This work will be paid for at the Contract lump sum price for "Class 1 Containment and Collection of Surface Preparation Debris (Site No. X)," at the site designated. The price shall include all materials, equipment, tools, labor and work incidental thereto.

**Pay Item**

Class 1 Containment and Collection of  
Surface Preparation Debris (Site No. X)

**Pay Unit**

l.s.

## **ITEM #0603729A – LOCALIZED PAINT REMOVAL AND FIELD PAINTING OF EXISTING STEEL**

**Description:** Work under this item shall consist of paint removal and field painting of the existing steel at designated areas. The work shall include containments, paint removal, collection of paint and associated debris, surface preparation and field painting. Designated areas include: areas specifically designated on the plans and those areas where construction activities require the removal of the existing coatings to accomplish other Contract work (such as, but not limited to, arc gouging or welding). The paint removal is required because of the possible presence of hazardous paint containing lead or other hazardous metals. The paint removal is required to comply with OSHA and DEEP regulations.

Privately-owned utilities, bridge rails, stay-in-place forms, fences, elastomeric bearing pads and bronze components shall be protected from damage by surface preparation and painting operations and are not to be painted.

**Submittals:** A minimum of 20 calendar days before starting any paint removal, surface preparation and coating application work, the painting Contractor shall submit the following to the Engineer for acceptance:

1. A copy of the firm's written Quality Control Program used to control the quality of surface preparation and coating application including, but not limited to, ambient conditions, surface cleanliness and profile, coating mixing, dry film thickness and final film continuity.
2. A copy of the firm's written surface preparation and application procedures. This written program must contain a description of the equipment that will be used for surface preparation, including the remediation of soluble salts, and for paint mixing and application. Coating repair procedures shall be included.
3. A detailed description of the Contractor's enforcement procedures and the authority of personnel.
4. Containment plans (paint removal/collection of debris, surface preparation, coating applications, coating applications with heat, etc.).
5. If the application of heat is proposed for coating application purposes, provide information on the heat containment and procedures that will be used, with data sheets for the equipment.  
**Note:** If heat is used for coating operations, the heat and containment must be maintained to provide the required temperatures for the duration of the **cure** period.
6. Proof of SSPC-QP1 qualifications, CAS-certification(s) and QP2 qualifications, as applicable.
7. Coating product information, including coating manufacturer, product name, application instructions, technical data, MSDS and color chips.

The Contractor shall not begin any paint removal work until the Engineer has accepted the submittals. The Contractor shall not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Acceptance of the programs does not relieve the Contractor from the

responsibility to conduct the work in strict accordance with the requirements of Federal, State, or local regulations, this specification, or to adequately protect the health and safety of all workers involved in the Project and any members of the public who may be affected by the Project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

**Materials:** The paint shall be one of the following **2-coat systems**:

|                                     |                     |
|-------------------------------------|---------------------|
| Carbomastic 15                      |                     |
| Carbothane 133 LV, manufactured by: | Carboline           |
|                                     | 2150 Schuetz Road   |
|                                     | St. Louis, MO 63146 |
|                                     | (800) 848-4645      |

|                               |                     |
|-------------------------------|---------------------|
| Epoxy Mastic Aluminum II      |                     |
| HS Poly 250, manufactured by: | Sherwin Williams    |
|                               | 425 Benton Street   |
|                               | Stratford, CT 06615 |
|                               | (203) 377-1711      |
|                               | (800) 474-3794      |

|                                     |                     |
|-------------------------------------|---------------------|
| Carbomastic 90                      |                     |
| Carbothane 133 LV, manufactured by: | Carboline           |
|                                     | 2150 Schuetz Road   |
|                                     | St. Louis, MO 63146 |
|                                     | (800) 848-4645      |

All materials for the complete coating system shall be furnished by the same coating material manufacturer with no subcontracted manufacturing allowed. Intermixing of materials within and between coating systems will not be permitted. Thinning of paint shall conform to the manufacturer's written recommendations. The coating thickness shall be in accordance with the Manufacturer's printed instructions. All components of the coating system and the mixed paint shall comply with the Volatile Organic Compounds (VOC) Content Limits and Emission Standards stated in the Connecticut Department of Energy and Environmental Protection's Administration Regulation for the Abatement of Air Pollution, Sections 22a-174-41 through 41a and 22a-174-20(s), respectively.

Control of Materials: A Materials Certificate will be required for the selected paint system in accordance with Article 1.06.07, confirming the conformance of the paint to the requirements set forth in these specifications. The selected Topcoat shall conform (as close as possible) in color to the existing topcoat.

**Note: If any of the above and/or following stipulated Contract specifications differ from those of the manufacturer's recommended procedures or ranges, the more restrictive of the requirements shall be adhered to unless directed by the Engineer in writing.**

**Construction Methods:**

Contractor - Subcontractor Qualifications: Contractors and subcontractors doing this work are required to be certified by the SSPC Painting Contractor Certification Program (PCCP) to QP 1 entitled "Standard Procedure for Evaluating Qualifications of Painting Contractors ("Field Application to Complex Structures"). When the work involves the disturbance of lead-containing paint, the Contractor and subcontractor are also required to be certified to SSPC-QP 2 "Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint." The certification(s) must be kept current for the duration of the work. If a Contractor's or subcontractor's certification expires, the firm will not be allowed to do any work related to this item until the certification is reissued. Requests for extension of time for delay to the completion of the Project due to an inactive certification will not be considered and liquidated damages will apply. In addition, if any recoat times are exceeded, the affected areas shall be cleaned to SSPC-SP 15 and coatings reapplied in accordance with these specifications at no additional cost to the State.

Contractors and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)**-certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each surface preparation/painting crew during surface preparation cleaning/removal and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand/power tool cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

All Contractor activities associated with the work described and specified herein shall be conducted in accordance with all applicable Federal, State of Connecticut and local safety regulations and guidelines.

Quality Control Inspections: The Contractor shall perform first line, in process Quality Control (QC) inspections. The Contractor shall implement a Quality Control Program accepted by the Engineer, including written daily reports, that ensures that the work accomplished complies with these specifications. All Quality Control Reports must be reviewed and signed by either a NACE Coating Inspector Level 2 - Certified (must have completed sessions I, II and III) or SSPC – BCI Level I Inspector (Minimum qualifications). Copies of these reports shall be provided daily to the Engineer. Contractor QC inspections shall include, but not be limited to the following:

- Suitability of protective coverings and containments
- Ambient conditions

- Surface preparation (solvent cleaning or hand/power tool cleaning)
- Coating application (mixing, thinning, and wet/dry film thickness)
- Recoat times and cleanliness between coats
- Coating continuity (freedom from runs, sags, pinholes, shadow-through, skips, misses, etc.)
- Final film acceptance

Limits of Paint Removal and Field Painting: Prior to applying the heat of welding equipment to localized areas of existing steel superstructures, the existing paint shall be removed to a width of 6 inches from wherever the heat will be applied, or as directed by the Engineer. The locations of the paint removal and field painting shall be reviewed and accepted by the Engineer prior to commencement of the work. Such acceptance by the Engineer does not relieve the Contractor of his responsibility for complying with applicable OSHA and DEEP regulations.

Containment for Paint Removal and Collection of Debris: The containment(s) shall be designed and erected to contain, as well as facilitate the collection of debris from the paint removal operations. Drawings and details of the containment(s) shall be submitted to the Engineer for review and comments prior to any paint removal. Review of the containment by the Engineer shall in no way relieve the Contractor of his responsibility for the containment. The containment shall conform to the requirements found within the SSPC Guide 6. The class of the containment shall be a minimum of Class 3P, modified to include the following:

- A. The containment materials shall be air and water impenetrable and fire resistant.
- B. With the exception of the entryways, all seams in the containment enclosure shall be lapped a minimum of 24 inches and shall be tied off at intervals not to exceed 18 inches.
- C. All attachments to bridge parapets or the underside of the bridge deck shall be sealed to prevent the escape of dust and debris.

The above specified containment must be used for **all** paint removal and collection of debris operations. The containment must remain in place until all associated debris has been collected.

Storage and Disposal of Collected Debris: All of the debris resulting from the paint removal operations shall be contained and collected. Debris within containment enclosures shall be removed by HEPA vacuum collection prior to disassembly of the enclosures. All the debris, rust and paint chips shall be stored in leak-proof storage containers at the Project site. Debris storage shall be in accordance with Connecticut Hazardous Waste Management Regulations. The storage containers and storage locations shall be reviewed by the Engineer and shall be located in areas not subject to ponding. Storage containers shall be placed on pallets and closed and covered with tarps at all times except during placement, sampling, and disposal of the debris.

Prior to generation of any hazardous waste, the Contractor shall notify the Engineer of its selected hazardous waste transporter and disposal facility. The Contractor must submit to the Engineer: (1) the transporter's current U.S DOT Certificate of Registration and (2) the transporter's current Hazardous Waste Transporter Permits for the State of Connecticut, the hazardous waste destination state and any other applicable states. The Engineer will then obtain an EPA ID number that will be

forwarded to the Contractor. Any changes in transporter or facility shall be immediately forwarded to the Engineer for review.

The Contractor shall conform to the latest requirements of the Hazardous Waste Management Regulations prepared by the DEEP's Hazardous Waste Management Section, subject to regulations of Section 22a-449(c) of the Connecticut General Statutes.

Disposal of the debris shall be in strict conformance with all Federal E.P.A. and DEEP regulations for hazardous materials.

All necessary forms, including the "Uniform Hazardous Waste Manifest" obtained from the Hazardous Waste Management Section of DEEP, must be filled out, approved and signed by the Department's Project Engineer (Construction), and appropriate copies returned to the Department's Division of Environmental Compliance.

A licensed hazardous waste transporter and a licensed hazardous waste treatment/disposal facility must be secured from lists available from the DEEP and approved by the Department's Division of Environmental Compliance.

The Contractor is liable for any fines, costs, or remediation costs incurred as a result of their failure to be in compliance with this special provision and all Federal, State and Local laws.

Paint Removal/Surface Preparation: The existing structural steel shall be power tool cleaned according to SSPC-SP 15 "Commercial Grade Power Tool Cleaning." The power tools (needle guns, grinders, etc.) shall be equipped with HEPA vacuum attachments. Before the power tool cleaning, all dissolvable foreign matter, such as oil, grease, and dust shall be removed by wiping or scrubbing the surface with rags or brushes wetted with solvent in accordance with the provisions of SSPC-SP 1 "Solvent Cleaning." Clean solvent and clean rags or brushes shall be used for the final wiping. The cleaned surface shall be accepted by the Engineer. If the surface is determined to meet the requirements of SSPC-SP 15, painting operations can commence.

**Note:** Chemical stripping and abrasive blast cleaning will not be permitted.

Existing Steel Surfaces to be Painted: After the designated areas have been inspected and accepted according to the surface preparation specification, SSPC SP 15, the steel surfaces which are to receive the field touch-up paint shall be cleaned immediately prior to coating operations by wiping or scrubbing the surface with rags or brushes wetted with solvent. Use clean solvent and clean rags for the final wiping.

- Solvent must be compatible with the specified coatings. Solvent cleaned surfaces shall be primed before any detrimental recontamination or corrosion occurs. Follow manufacturer's safety recommendations when using any solvent.
- All foreign materials such as dirt, dust, loose rust scale, sand, bird droppings, and all materials loosened or deposited on the steel surface by cleaning operations shall also be completely removed by vacuuming before any painting operations commence.

- Failure by the Contractor to properly prepare and clean surfaces to be painted in accordance with the specifications shall be cause for rejection by the Engineer. All surfaces that are rejected shall be cleaned and painted to the satisfaction of the Engineer in accordance with the specifications, at no additional cost to the State.

Application of Field Paint: The method for coating application shall be by brush and roller equipment. The containment for paint application shall consist of drop cloths and a solid platform bottom.

Storage, opening, mixing, thinning and application of the paint shall be accomplished in strict accordance with the specified Contract requirements and procedures published by the paint manufacturer and supplier. The Contractor shall have at the Project site, at all times, the current copies of all technical data, recommendations and procedures published by the paint manufacturer. All coatings shall be supplied in sealed containers bearing the manufacturers name, product designation, batch number and mixing/thinning instructions. Leaking containers shall not be used. Paint shall be furnished in the manufacturer's original sealed and undamaged containers. For multiple component paints, only complete kits shall be mixed and used. Partial mixing is not allowed. The paint shall be applied to produce a uniform smooth coat without runs, streaks sags, wrinkles, or other defects.

The Contractor shall provide a suitable facility for the storage of paint, which is in accordance with the latest Federal and State regulations. This facility must provide protection from the elements and insure that the paint is not subjected to temperatures outside the manufacturer's recommended extremes. Storage for paint must be located in reasonable proximity to the painting locations. The Engineer shall be provided access to the stored paint at any time, for inspection and to witness removal of the materials. The Contractor's facility for the storage of paint is subject to the approval of the Engineer.

Ambient Conditions: Solvent cleaning just prior to coating application or coating application work shall be performed when the conditions are as follows:

- The relative humidity is at or below 80% and when there is no falling rain or dew present, or anticipated, before a prepared surface can be coated.
- The substrate is not damp or covered by frost or ice.
- The surface temperature and air temperature are between 50°F and 100°F.
- The surface temperatures of the steel and air are more than 5°F above the dew point temperature, as determined by a surface temperature thermometer and electric or sling psychrometer.

If the requirements of the coating manufacturer differ from the ranges provided above, comply with the most restrictive requirements unless directed otherwise by the Engineer in writing.

The Contractor is liable for any fines, costs, or remediation costs incurred as a result of his failure to be in compliance with this special provision and all federal, state, and local laws.

**Method of Measurement:** This work will be measured by the actual square foot of existing steel at designated areas where paint was removed, surfaces cleaned, re-painted and accepted. **Note:** In some instances when **new steel** is being added to the designated areas where the paint was removed, the removal area may not equal the area to be re-painted. Measurement in these cases will be by the actual square foot of existing steel where the paint was removed and accepted.

**Basis of Payment:** This work will be paid for at the Contract unit price per square foot for "Localized Paint Removal and Field Painting of Existing Steel," complete in place, which price shall include all materials, containments, collection and disposal of non-hazardous debris (Site No. 1 and 2), containers, equipment, tools, labor, heating devices, services of the technical advisor and for any incidental work. No direct payment will be made for the cost of storage or hauling the paint and other materials, including paint chips and associated debris, to and/or from the bridge site, but the cost thereof shall be included in the Contract unit price.

| <u><b>Pay Item</b></u>                                       | <u><b>Pay Unit</b></u> |
|--|------------------------|
| Localized Paint Removal and Field Painting of Existing Steel | s.f.                   |

## **ITEM #0603871A – REMOVAL OF EXISTING STRUCTURAL STEEL**

**Description:** Work under this item shall consist of permanent removal and satisfactory disposal of miscellaneous steel from the bridge superstructure in accordance with the plans and as directed by the Engineer. The structural steel to be removed consists of the following: anchor rods and portions of secondary support systems.

**Materials:** Materials shall comply with the applicable requirements of the standard specifications.

**Construction Methods:** Miscellaneous steel, where called for in the Plans, shall be cut out or disconnected (by removal of bolts) and removed from the site.

Removal of weld material shall be done by machining, grinding, chipping, or air carbon-arc gouging and in such a manner that the remaining base metal is not nicked or undercut. A minimum of 1/8" of weld metal shall be left in place if arc gouging is the selected removal method and the remaining weld metal shall be removed by grinding. Welders who perform arc gouging shall be SMAW certified.

The removal shall not result in damage to any permanent construction (new or existing) or to adjoining property. If any damage does occur the Contractor shall repair it to the satisfaction of the Engineer at no additional expense to the Department.

**Working Drawings:** The Contractor shall prepare and submit for review, Working Drawings, including computations, and written procedures for the removal of the structural steel in accordance with Article 1.05.02.

The Working Drawings and computations shall account for all construction loads and conditions the structure will encounter during the removal process and during subsequent stages of construction up until the bridge has been constructed to its final condition. Temporary members or connections, if the Contractor's computations show they are required, shall be indicated in the Working Drawings.

**Paint Removal:** Wherever arc gouging, flame cutting, or welding will be used, existing paint shall first be removed because of the possible presence of lead in the existing paint. Prior to applying the heat of welding equipment to localized areas of steel superstructures, the existing paint shall be removed to a minimum of 6 inches from where the heat will be applied, and as directed by the Engineer.

**Method of Paint Removal:** Existing paint shall be removed in accordance with the item "Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)". See plans for applicable limits of each item.

**Method of Measurement:** This item will be measured for payment by the hundredweight (cwt.) of existing miscellaneous steel permanently removed to the acceptance of the Engineer. The weight of steel shall be measured with certified scale(s) supplied by the Contractor and approved by the Department.

**Basis of Payment:** This work will be paid for at the contract unit price per hundredweight for "Removal of Existing Structural Steel", which price shall include removal and disposal of miscellaneous steel and all materials, equipment, tools and labor incidental thereto.

| <u><b>Pay Item</b></u>               | <u><b>Pay Unit</b></u> |
|--------------------------------------|------------------------|
| Removal of Existing Structural Steel | CWT                    |

**ITEM #0651289A – GROUT FILL STORM PIPE**

**DESCRIPTION**

Work under this item shall include completely filling existing storm drain pipes with grout at the locations shown on the Plans or as directed by the Engineer.

**MATERIALS**

The grout shall conform to Section M.03.01.12 of the Standard Specifications.

**CONSTRUCTION METHODS**

The Contractor shall prepare the grout mixture in accordance with the manufacturer’s specifications. The existing stormdrain pipe shall be completely filled with the grout mixture and to the satisfaction of the Engineer.

**METHOD OF MEASUREMENT**

This work will be measured for payment by the number of cubic yards of grout actually installed and accepted by the Engineer.

**BASIS OF PAYMENT**

Grout Fill Storm Pipe will be paid for at the contract unit price per cubic yard installed, completed and accepted by the Engineer, which price shall include all materials, equipment, tools and labor incidental thereto.

**Pay Item**

Grout Fill Storm Pipe

**Pay Unit**

CY

## **ITEM #0707009A – MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)**

**Description:** Work under this item consists of furnishing and installing a seamless elastomeric waterproofing membrane system applied to a concrete or steel surface as shown on the plans, in accordance with this specification and as directed by the Engineer. Work shall also include conditioning of the surface to be coated and all quality-control testing noted herein.

The completed membrane system shall be comprised of a primer coat, two layers of the membrane coating (minimum total thickness of 80 mil and maximum total thickness not to exceed 120 mil), an additional 40 mil membrane layer with aggregate broadcast into the material while still wet, reinforcing material at deck panel joints and two applications of asphalt emulsion (tack coat) at a rate of 0.05-0.07 gal/s.y. each, allowing the first application to break prior to applying the second.

**Materials:** The Contractor shall select a waterproofing membrane system from the Department's current Qualified Product List (QPL) for Spray-Applied Membrane Waterproofing System. All materials incorporated in the works shall meet the Manufacturer's specification for the chosen system. The Engineer will reject any system that is not on the QPL.

Reinforcing material shall be as recommended by the manufacturer.

**Materials Certificate:** The Contractor shall submit to the Engineer a Materials Certificate for the primer, membrane and aggregate in accordance with the requirements of Article 1.06.07.

**Construction Methods:** At least 30 days prior to installation of the membrane system, the Contractor shall submit to the Engineer a Site-specific Installation Plan that includes the manufacturer's recommended procedure for preparing the deck surface, pre-treatment or preparing at cracks and gaps, treatment at curbs, vertical surfaces or discontinuities, applying the primer and membrane, placing of aggregated coat and all Quality Control (QC Plan) testing operations to be performed during the membrane system's installation. Procedures shall also include recommended repairs of system non-compliant issues identified during application. The system shall be applied to the prepared area(s) as defined or shown in the plans, strictly in accordance with the Installation Plan.

A technical representative, in the direct employ of the manufacturer, shall be present on-Site immediately prior to and during application of the membrane. The representative shall inspect and approve the surface prior to priming, and provide guidance on the handling, mixing and addition of components and observe application of the primer and membrane. The technical representative shall perform all required QC testing and remain on the Project site until the membrane has fully cured.

All QC testing, including verbal direction or observations at the time of installation, shall be recorded and submitted to the Engineer for inclusion in the Project records. The QC testing data

shall be received by the Department's project personnel prior to any paving over the finished membrane, or within 24 hours following completion of any staged portion of the work.

1. **Applicator Approval:** The Contractor's membrane Applicator shall be fully trained and licensed by the membrane manufacturer and shall have successfully completed at least three spray membrane projects in the past five years. The Contractor shall furnish references from those projects, including names of contact persons and the names, addresses and phone numbers of persons who supervised the projects. This information shall be submitted to the Engineer prior to the submittal of the Installation Plan. The Engineer shall have sole authority to determine the adequacy and compliance of the submitted information. Inadequate proof of ability to perform the work will be grounds to reject proposed applicators.

2. **Job Conditions:**

- (a) **Environmental Requirements:** Air and substrate temperatures shall be between 32°F and 104°F and the substrate shall be above the dew point. Outside of this range, the Manufacturer shall be consulted.

The Applicator shall be provided with adequate disposal facilities for nonhazardous waste generated during installation of the membrane system. The applicator shall follow safety instructions regarding respirators and safety equipment.

- (b) **Safety Requirements:** All open flames and spark producing equipment shall be removed from the work area prior to commencement of application.

"No Smoking" signs shall be visibly posted at the Site during application of the membrane waterproofing.

Personnel not involved in membrane application shall be kept out of the work area.

3. **Delivery, Storage and Handling:**

- (a) **Packaging and Shipping:** All components of the membrane system shall be delivered to the Site in the Manufacturer's packaging, clearly identified with the product type and batch number.
  - (b) **Storage and Protection:** The Applicator shall be provided with a storage area for all components. The area shall be cool, dry and out of direct sunlight and shall be in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on Site for review by the Engineer or other personnel.

- (c) Shelf Life - Membrane Components: Packaging of all membrane components shall include a shelf life date sealed by the Manufacturer. No membrane components whose shelf life has expired shall be used.

4. Surface Preparation:

- (a) Protection: The Applicator shall be responsible for the protection of equipment and adjacent areas from over spray or other contamination. Parapets and bridge joints shall be masked prior to application of the materials.
- (b) Surface Preparation: Sharp peaks and discontinuities shall be ground smooth. Any peak greater than ¼ inch above the surface profile of the prepared substrate shall be ground to the surrounding elevation. Any valley or minor surface deterioration of ½ inch or greater shall also be repaired. The extent and location of surface patches require the approval of the Engineer before the membrane system is applied.

Surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products, and previous waterproofing materials. If required, degreasing shall be done by detergent washing in accordance with ASTM D4258.

The surface shall be abrasively cleaned, in accordance with ASTM D4259, to provide a sound substrate free from laitance.

Voids, honeycombed areas, and blow holes on vertical surfaces shall be repaired as indicated in the Installation Plan.

All steel components to receive membrane waterproofing shall be blast cleaned in accordance with SSPC SP6 and shall be coated with the membrane waterproofing system within the same work shift.

5. Inspection and Testing: Prior to priming of the surface, the Engineer, Applicator and Manufacturer's technical representative shall inspect and approve the prepared substrate.

- (a) Random tests for deck moisture content shall be conducted on the substrate by the Contractor at the Site using a "Sovereign Portable Electronic Moisture Master Meter," a "Tramex CMEXpertII Concrete Moisture Meter" or approved equal. The minimum frequency shall be one test per 1000 s.f. but not less than three tests per shift for each contiguous section worked on during that shift. Additional tests may be required if atmospheric conditions change and retesting of the substrate moisture content is warranted.

The membrane system shall not be installed on substrate with a moisture content greater than 6%, or at a moisture content above the amount recommended by the system's Manufacturer, whichever is less.

- (b) Random tests for adequate tensile bond strength shall be conducted by the Contractor on the substrate using an adhesion tester in accordance with the requirements of ASTM D4541. The minimum frequency shall be one test per 5,000 s.f. but not less than three adhesion tests per shift for each contiguous section worked on during that shift. The locations of the pull tests shall be at least a distance from each other equal to or greater than 1/3 of the width or length (whichever is greater) of the area being worked in that section. The location of the pull tests shall be located in accordance with ASTM D3665 or a statistically-based procedure of stratified random sampling approved by the Engineer.

Adequate surface preparation will be indicated by tensile bond strengths of primer to the substrate greater than or equal to 150 psi or failure in a concrete surface and greater than or equal to 300 psi for steel surfaces.

If the tensile bond strength is lower than the minimum specified, the Engineer may request additional substrate preparation. Any primer not adequately applied shall be removed and new primer applied at the Contractor's expense, as directed by Engineer.

- (c) Grouted joints, materials that the membrane cannot bond to, and cracks or discontinuities that cannot be bridged over by the membrane material shall be covered by a reinforcing material recommended by the membrane system's Manufacturer prior to application of membrane layers as approved or directed by the Engineer.

## 6. Application:

- (a) The System shall be applied in the following distinct steps as follows:
  - 1) Substrate preparation
  - 2) Priming
  - 3) Reinforcing material application over grouted joints, cracks, etc.
  - 4) Membrane application (minimum 2 layers)
  - 5) Membrane with aggregate
- (b) Immediately prior to the application of any components of the System, the surface shall be adequately dry (see Section 5(a) of this specification) and any remaining dust or loose particles shall be removed using clean, dry, oil-free compressed air or industrial vacuum.
- (c) Where the area to be treated is bound by a vertical surface (e.g. curb or wall), the membrane system shall be continued up the vertical, if shown on the plans or directed by the Engineer.
- (d) The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results, in accordance with the Manufacturer's recommendations or as approved or directed by the Engineer.

- (e) A neat finish with well defined boundaries and straight edges shall be provided by the Applicator.
- (f) Primer: The primer shall consist of one coat with an overall coverage rate of 125 to 175 s.f./gal unless otherwise recommended in the Manufacturer's written instructions.

All components shall be measured and mixed in accordance with the Manufacturer's recommendations.

The primer shall be spray applied using a single component spray system approved for use by the Manufacturer. If required by Site conditions and allowed by the manufacturer brush, squeegee or roller application will be allowed.

The primer shall be allowed to cure tack-free for a minimum of 30 minutes or as required by the Manufacturer's instructions, whichever time is greater, prior to application of the first lift of waterproofing membrane.

Porous concrete (brick) may require a second coat of primer should the first coat be absorbed.

- (g) Membrane and Reinforcing Material: Application of the membrane on the primed surface shall not commence until the primer is cured as described in Section 6(f) of this specification and the adhesion pull tests are completed in accordance with Section 5(b) of this specification.

The waterproofing membrane shall consist of two coats for a total dry film thickness of a minimum 80 mils but not to exceed 120 mils. Adjacent coats shall be of a contrasting color to aid in Quality Assurance and inspection. Any reinforcing material shall be applied immediately before the first coat of membrane in accordance with the Manufacturer's recommendations.

The membrane shall be comprised of Components A and B and a hardener powder which is to be added to Component B in accordance with the Manufacturer's recommendations.

The substrate shall be coated in a methodical manner.

Thickness checks: For each layer, checks for wet film thickness using a gauge pin or standard comb-type thickness gauge shall be carried out once every 100 s.f. Where rapid set time of the membrane does not allow for wet film thickness checks, ultrasonic testing (steel surfaces only), calibrated point-penetrating (destructive) testing, in-situ sampling (cutout of small sections for measuring thicknesses), or other methods approved by the Engineer shall be employed for determination of dry film thickness. The measured thickness of each and every individual test of the membrane shall be greater than or equal to the required thickness.

**Bond Strength:** Random tests for adequate tensile bond strength shall be conducted on the membrane in accordance with the requirements of ASTM D4541. The minimum test frequency shall be one test per 5,000 s.f. but no less than three adhesion tests per bridge. Adequate adhesion will be indicated by tensile bond strengths of the membrane to the substrate of greater than or equal to 150 psi or failure in a concrete surface, and greater than or equal to 300 psi for steel surfaces.

Repair the membrane system following destructive testing and correct any deficiencies in the membrane system or substrate noted during QC testing in accordance with the Manufacturer's recommendations to the satisfaction of the Engineer at no additional cost to the State.

- (h) **Repairs:** If an area is left untreated or the membrane becomes damaged, a patch repair shall be carried out to restore the integrity of the system. The damaged areas shall be cut back to sound materials and wiped with solvent (e.g. acetone) up to a width of at least four inches on the periphery, removing any contaminants unless otherwise recommended by the Manufacturer. The substrate shall be primed as necessary, followed by the membrane layers. A continuous layer shall be obtained over the substrate with a four-inch overlap onto existing membrane.

Where the membrane is to be joined to existing cured material, the new application shall overlap the existing by at least four inches. Cleaning and surface preparation on areas to be lapped shall be as recommended in the Manufacturer's written instructions.

- (i) **Aggregated Finish:**
  - 1) Apply an additional 40 mil thick layer of the membrane material immediately followed by an aggregate coating, before the membrane cures, at a rate to fully cover the coated area to a point where no membrane material is visible. The membrane and aggregate shall be fully integrated after the aggregate has been applied and the membrane cured.
  - 2) Localized areas not fully coated shall be touched-up with additional membrane and aggregate as needed.
  - 3) Using motorized mechanical sweepers or a vacuum sweeper apparatus, remove all loose and excess aggregate from the surface to the satisfaction of the Engineer and dispose of properly after application prior to allowing traffic onto finished surface or application of tack coat. Any areas not fully coated after sweeping shall be touched up with additional membrane and aggregate as needed.

- 7. **Final Review:** The Engineer and the Applicator shall jointly review the area(s) over which the completed system has been installed. Any irregularities or other criteria that do not meet the requirements of the Engineer shall be addressed at this time.

**Method of Measurement:** This item shall be measured by the number of square yards of waterproofed surface completed and accepted.

**Basis of Payment:** This item will be paid for at the Contract unit price per square yard of “Membrane Waterproofing (Cold Liquid Elastomeric),” complete and accepted in place, which price shall include all surface preparation, furnishing, storing and applying the system, technical representative and Quality Control testing, and any necessary repairs and remediation work as well as all materials, equipment, tools, labor incidental to this work.

| <b><u>Pay Item</u></b>                           | <b><u>Pay Unit</u></b> |
|--|------------------------|
| Membrane Waterproofing (Cold Liquid Elastomeric) | s.y.                   |

## **ITEM #0819002A – PENETRATING SEALER PROTECTIVE COMPOUND**

**Description:** Work under this item shall consist of cleaning concrete surfaces of dirt, dust and debris, and furnishing and applying a clear, penetrating sealer where shown on the plans, to provide a hydrophobic barrier against the intrusion of moisture. This work also includes furnishing, installing and removing platforms, scaffolding, ladders and other means of access as well as shields, as required, to protect adjacent areas from overspray. Penetrating sealer shall not be applied to concrete surfaces that have been previously treated with coatings or curing compounds that would hinder penetration of the sealer into the concrete.

**Materials:** The penetrating sealer shall be a single component, 100% silane or silane siloxane from the list of materials below. The material shall be selected in anticipation of the expected ambient and surface temperature at the time of installation.

The following products may be used when ambient and surface temperatures are 40°F and above:

SIL-ACT ATS-100 (Silane)  
Advanced Chemical Technologies, Inc.  
9608 North Robinson Ave.  
Oklahoma City, OK 73114  
405-843-2585  
[www.advchemtech.com](http://www.advchemtech.com)

Armor SX 5000 EXT-100 or SX 5000 WB (Silane Siloxane)  
Foundation Armor, LLC.  
472 Amherst St. STE 14  
Nashua, NH 03063  
866-306-0246  
[www.foundationarmor.com](http://www.foundationarmor.com)

Aquinil Plus 100 (Silane)  
ChemMasters  
300 Edwards Street  
Madison, OH 44057  
440-428-2105, 800-486-7866  
[www.chemmasters.net/Aquanil100.php](http://www.chemmasters.net/Aquanil100.php)

The following product may be used when ambient and surface temperatures are 20°F and above:

Certi-Vex Penseal 244 100% (Silane)  
Vexcon Chemicals  
7240 State Road  
Philadelphia, PA 19135  
888-839-2661  
[www.Vexcon.com](http://www.Vexcon.com)

### **Construction Methods:**

**Submittals:** The Contractor shall submit to the Engineer Safety Data Sheets (SDS) and product literature for the selected product. The literature shall include written instructions how to apply the product to vertical and horizontal surfaces, and where required, overhead surfaces.

The Contractor shall submit to the Engineer, in accordance with Article 1.05.02, written procedures for cleaning the concrete surfaces. The submittal shall include proposed equipment and materials and shall address how adjacent traffic and other areas shall be protected from dust, debris and overspray during the cleaning and application processes. Where the sealer is to be applied to parapets before pavement is placed, the submittal shall address protecting the deck and curb to which membrane waterproofing will be applied. Should the membrane already be present, the submittal shall address protecting the membrane. It shall also indicate how vegetation shall be protected from overspray. The submittal shall address the conditions under which work may proceed, including wind speed, temperature and precipitation. It shall also include procedures to be followed to protect the work should unfavorable weather conditions occur before the product has been absorbed.

The Contractor shall inspect the surfaces to be sealed to identify surface cleaning needs before submitting the procedures. The Contractor shall identify conditions that need repair or surfaces that may require special attention or cleaning procedures. Such observations shall be addressed in the written procedures.

**Surface Preparation:** Concrete surfaces to which penetrating sealer will be applied shall be dry, clean and free of grease, oil and other surface contaminants. New concrete and newly placed repair concrete shall be allowed to cure for at least 28 days before applying sealer. After rain or water cleaning, allow existing concrete surfaces to dry for at least 8 hours before applying sealer. Dry surfaces may be cleaned by sweeping with brushes or brooms, and blowing clean with oil-free, compressed air. The Contractor shall take care not to damage the concrete surface finish during cleaning operations. Care shall be taken so that cleaning methods do not damage joint sealant or other components of the structure.

**Application:** Application of the sealer can only begin after the Engineer evaluates the concrete surfaces for cleanliness and moisture, and determines that conditions are appropriate for application.

The sealer shall saturate the concrete surface with a rate of application of 200 square feet per gallon of sealer. The dispersion shall run six to eight inches down a vertical surface from the spray pattern. The maximum run-down is 12 inches. The Contractor shall monitor and record the number of square feet per gallon of sealer used to verify that the required application rate is being met. Additional sealer may be needed if surfaces are porous, rough or textured.

The Engineer will inspect the concrete surface during application and after the sealer has had adequate time to penetrate. As a test, water sprayed from a bottle on the sealed surface shall bead up and not be absorbed. Should water be absorbed into the concrete at a test area, additional areas

shall be tested to determine which areas should receive additional application of sealer. The Contractor shall apply additional sealer to the identified areas until absorption of water is prevented.

**Method of Measurement:** This work will be measured for payment by the actual number of square yards of concrete, coated completely and accepted, within the designated limits. The area will be measured once, regardless of the number of applications required.

**Basis of Payment:** This work will be paid for at the Contract unit price per square yard for “Penetrating Sealer Protective Compound,” complete, which price shall include all equipment tools, labor and materials, incidental thereto, including the preparation of the concrete surfaces and proper disposal of debris.

| <b><u>Pay Item</u></b>                 | <b><u>Pay Unit</u></b> |
|--|------------------------|
| Penetrating Sealer Protective Compound | s.y.                   |

**ITEM #0822005A – TEMPORARY PRECAST CONCRETE BARRIER CURB (STRUCTURE)**

**ITEM #0822006A – RELOCATED TEMPORARY PRECAST CONCRETE BARRIER CURB (STRUCTURE)**

**Description:**

Work under this item shall consist of furnishing, installing, relocating and removing temporary concrete barrier for use on structures as shown on the plans.

**Materials:**

1. The barrier shall be precast concrete conforming to Article 8.21.02-1.
2. Manufacturer identification and casting date shall be permanently marked on each barrier unit by means of a non-corrosive metal or plastic tag in the location shown on the plan. When used barrier is furnished, the Contractor shall provide documentation stating from where the material came, what project it will be used on, the casting dates, and certification that the barrier conforms to all State requirements.
3. Reinforcing steel shall conform to the requirements of ASTM A615M, Grade 60.
4. Lifting hooks. Keys, bolts, devices and attachments shall be of the size indicated on the plans or of a design satisfactory for the purpose intended as approved by the Engineer.
5. Anchor bolts shall conform to ASTM A307. Heavy hex nuts shall conform to AASHTO M291. The plate washers shall conform to AASHTO M232M, Grade 50. The anchor bolts, nuts, and plate washers shall be hot-dipped galvanized in accordance with ASHTO M232 and M111 as applicable.
6. Loop bars shall be bent from smooth bar steel conforming to AISI 1018 (hot rolled). Ends shall be hot-dipped galvanized in accordance with AASHTO M111.
7. Threaded connection rods shall be steel conforming to AASHTO M314 (ASTM F1554). Grade 55 except that threads and nominal diameters shall conform to ANSI B1.13M for Class 6g threads. The rod shall be threaded for a minimum of 4 inch at each end. Plain steel washers shall be manufactured in accordance with ANSI B18.22M. Heavy hex nuts shall conform to AASHTO M 291M for Class 10S and shall conform to the geometry defined in ANSI B18.2.4.6M. The threaded connection rods, washers, and nuts shall be hot-dipped galvanized after fabrication in accordance with the requirements of Class C of AASHTO M232.
8. The chemical anchor material shall be a resin compound specially formulated to secure bolts in concrete against tension pull-out. The Contractor shall select the chemical anchor material in accordance with Article M.03.07.
9. Non-shrink grout shall conform to subarticle M.03.05.
10. Barrier shall be accepted on the basis of the manufacturer's certification, as defined on Article M.08.02-4.
11. Sealant for patching holes in bituminous overlays shall be a cold-applied bituminous sealer conforming to M.08.02-15.

12. Anchor Bolts/Threaded Connection Rods-Certified Test Reports: The Contractor shall submit a Certified Test Report and a Materials Certificate in conformance with Article 1.06.07 and a sample of all anchor bolts, threaded connection rods, nuts, and washers for testing prior to their installation.  
The Contractor shall not install any anchor bolts or threaded connection rods, prior to receipt of the approved test results and approval by the Engineer.
13. Delineators shall conform to Article 8.22.02.

### **Construction Methods:**

1. Fabrication: The barrier shall be precast concrete in conformance with the pertinent requirements of Article 8.21.03 and the plans, except that penetrating sealer protective compound is not required.
2. Installation: The barrier shall be placed as shown on the plans or as directed by the Engineer.

The barriers shall be anchored to the concrete deck slab in accordance with the plans and the following:

- a. Prestressed Deck Units: Threaded inserts with matching anchor bolts shall be used for securing the barrier to prestressed deck units. The threaded inserts shall be cast into the deck units during fabrication as necessary to accommodate stage construction.
- b. Chemical Anchoring: This consists of drilling holes in concrete deck slabs, placing anchor bolts in the holes, and securing the bolts with a pre-approved chemical anchor material.

The Contractor shall submit the following to the Engineer for approval type of drill, diameter of bit, method of cleaning. Holes and method of placement of chemical anchor material. Specifications and recommendations for the aforementioned may be obtained from the manufacturer of the chemical anchor material.

Drilling methods shall not cause spalling, cracking, or other damage to the concrete. Those areas damaged by the Contractor shall be repaired by him in a manner suitable to the Engineer and at no expense to the State.

Care shall be taken not to drill holes into or through structural steel. The Contractor shall take the necessary precautions to prevent materials from falling into the brook below.

When reinforcing steel is encountered during the drilling of the holes, the Contractor shall attempt to angle the hole to by-pass the bar.

The holes shall be blown clean and wire brushed or otherwise cleaned per the manufacturer's written instructions prior to setting the anchor bolts.

The anchor bolts shall extend to the bottom of the holes and be hammer taped to insure full penetration. The chemical anchor material shall be installed in accordance with the written directions supplied by manufacturer of the chemical anchor material.

The barrier shall be anchored down by torquing the bolts "snug tight", which is defined as the tightness attained after several impacts from an impact wrench. No part of the bolt head shall project above the outer surface of the barrier.

- b. Through-Bolting: This consists of drilling completely through the deck slab and securing anchor bolts on the underside with plate washers and nuts. Through-Bolting is not permitted on new construction or prestressed concrete. Measures shall be taken to insure that no damage occurs to property below the bridge.
  - d. Care shall be taken not to drill holes into or through structural steel. The barrier shall be anchored down by torquing the bolts 'snug tight", which is defined as the tightness attained after several impacts from an impact wrench. No part of the bolt head shall project above the outer surface of the barrier.
- 3. Connection of Barrier Units: The barrier shall be joined together with threaded connection rods, and heavy hex nuts in accordance with the plans.
  - 4. Cutting of Anchor Bolts: Where ordered by the Engineer, protruding anchor bolts shall be cut off flush with the surface of the concrete deck. The bolts shall then be ground down below the surface of the deck and the space filled in with non-shrink grout.
  - 5. Patching with Non-Shrink Grout: After removal of the barrier, holes in newly constructed concrete decks and threaded inserts shall be blown clean with an air jet and filled in with non-shrink grout. The non-shrink grout shall be mixed and placed in strict accordance with the manufacturer's directions. The non-shrink grout shall be finished flush with the deck surface. Allow grout to cure a minimum of 24 hours before placing sealant in any remaining hole in the bituminous wearing surface.
  - 6. Delineators: Delineators shall be installed on top of the barrier in accordance with Article 8.22.03-3 and the plans.
  - 7. General: The barrier shall be kept in good condition at all times by the Contractor during all stages of construction. Any damaged material shall be replaced by the Contractor at his expense.

When the barrier is no longer required, it shall be removed from the work site and become the property of the Contractor.

**Method of Measurement:**

Temporary Precast Concrete Barrier Curb (Structure) and Relocated Temporary Precast Concrete Barrier Curb (Structure) will be measured for payment along the centerline at the top of the barrier and will be the actual number of linear feet of temporary structure barrier furnished, installed, and accepted.

Relocation of concrete barrier for access to the work area or for the convenience of the contractor will not be measured for payment. Movement of stored barrier or maintenance of the storage area will not be measured for payment.

Delineators will be measured in accordance with Article 12.05.04.

**Basis of Payment:**

This work will be paid for at the contract unit price per linear foot for "Temporary Precast Concrete Barrier Curb (Structure)" and "Relocated Temporary Precast Concrete Barrier Curb (Structure)", complete in place, which price shall include all furnishing, transportation, initial installation, relocation, final removal, storage, materials, reinforcing steel, connection rods, and all equipment, tools, and labor incidental thereto. The cost of furnishing, installing, and cutting of anchor bolts shall also be included for payment under this item. Each Temporary Precast Concrete Barrier Curb (Structure) will be paid for once regardless of the number of times it is used on the project. Any barrier units that become lost, damaged or defaced shall be replaced by the Contractor at no cost to the State.

| <u>Pay Item</u>   | <u>Pay Unit</u> |
|---|-----------------|
| Temporary Precast Concrete Barrier Curb (Structure)           | l.f.            |
| Relocated Temporary Precast Concrete Barrier Curb (Structure) | l.f.            |

## **ITEM #0904103A – REPAIR METAL BRIDGE RAIL**

**Description:** Work under this item shall consist of repairing metal bridge railing including removal and disposal of existing steel pipe rails and pipe rail connections, replacing deteriorated bolts, nuts and washers in-kind, cleaning and field painting of existing steel posts and installation of new galvanized pipe railings, as shown on the Plans, as directed by the Engineer and in accordance with this specification.

**Materials:** Materials for this work shall meet the following requirements:

1. Bridge Railings shall be standard steel pipe meeting the requirements of ASTM A53, Grade B.
2. Hot Dip Galvanizing of bridge railings shall meet the requirement of ASTM A123.
3. Bolts for railing connections to steel post shall be ASTM F3125 Grade A325, galvanized in accordance with ASTM A153 requirements.
4. Paint shall be one of the following single coat systems:

No. 4400 Series, manufactured by: Keeler and Long  
856 Echo Lake Road  
Watertown, CT 06795  
(860) 274-6701

Corothane I Mio-Aluminum or Galvapac One Pack Zinc Primer, manufactured by:  
Sherwin Williams  
425 Berton Street  
Stratford, CT 06615

Color of the paint shall closely match the color of the new galvanized railings.

Control of Materials: A Materials Certificate will be required for the selected paint system in accordance with Article 1.06.07, confirming the accordance of the paint to the requirements set forth in these specifications.

**Construction Methods:** Before fabricating any materials, the Contractor shall submit Shop Drawings to the Engineer for approval in accordance with Article 1.05.02 (b). These drawings shall include the following information: layout plan showing all railing post spacings, rail splice locations, details for the rails and material designations.

Existing metal bridge railings and connections shall be removed and disposed of from the site. Existing rail posts, baseplates and exposed anchor bolts shall be cleaned and painted.

The contractor is cautioned that brittle white caulking containing asbestos is present between the metal railing supports and parapet walls. See the Hazardous Material Inspection Report for Bridges 03176 and 03177 dated January 27, 2020. The Contractor shall follow the specification for Item #0020801A Asbestos Abatement when disposing of asbestos.

The steel surfaces shall be cleaned as described in the SSPC Steel Structures Painting Manual Volume 2-Systems and Specifications, latest Edition and these specifications.

The applicable SSPC specifications are:

|      |                       |
|------|-----------------------|
| SP 2 | "Hand Tool Cleaning"  |
| SP 3 | "Power Tool Cleaning" |

All loose mill scale, loose paint, loose rust and other foreign matter shall be removed in areas to be painted, and the edges of remaining paint shall be feathered. Cleaning shall be conducted in a manner, which will minimize damage to sound paint. All materials loosened or deposited on the steel surface by cleaning operations shall be completely removed by vacuuming before any painting operations commence.

The cleaned surface shall be approved by the Engineer prior to any painting. Such approval does not relieve the Contractor of responsibility for any later failures of the new paint. Failure by the Contractor to properly prepare and clean surfaces to be painted in accordance with the specifications shall be cause for rejection by the Engineer. All surfaces that are rejected shall be cleaned and painted to the satisfaction of the Engineer in accordance with the specifications, at no additional cost to the State.

Storage, opening, mixing, thinning and application of the paint shall be accomplished in strict accordance with the written requirements and procedures published by the paint manufacturer and supplier. The Contractor shall have at the project site, at all times, the current copies of all technical data, recommendations and procedures published by the paint manufacturer.

Paint shall be applied by brush or roller only. The paint shall be applied to produce a uniform smooth coat without runs, streaks sags, wrinkles, or other defects.

The new railings shall be accurately fabricated and installed as shown on the plans. Lengths of rail elements shall be continuous over a minimum of four rail posts wherever possible and in no case less than two. Rail splices shall be located within the rail connections over open joints in parapets and at other locations determined by the Contractor.

**Method of Measurement:** Work under this item will be paid for at the contract lump sum price and will not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract lump sum price for "Repair Metal Bridge Rail", complete in place, which price shall include all materials, tools, equipment and labor incidental thereto.

**Pay Item**  
Repair Metal Bridge Rail

**Pay Unit**  
l.s.

## **ITEM #0904900A – METAL BRIDGE RAIL PROTECTIVE FENCE**

### **Description:**

Work under this item shall consist of furnishing and installing chain link fencing as shown on the plans, or as directed by the Engineer, and in accordance with these specifications. Fence shall be of the height as shown on the plans.

### **Materials:**

Materials for this work shall meet the following requirements:

**Fabric:** The fabric shall be a black Polyvinyl Chloride (PVC) – coated chain link type, meeting the specifications of ASTM F668, Class 2b, thermally fused and bonded. The #9 gauge core wire shall be galvanized, PVC-coated, then woven to create a continuous fabric having a two inch mesh, knuckled at both top and bottom. The PVC coating shall be the color black as described in ASTM F934. .

**Posts:** All materials for posts shall meet the specifications of ASTM A53 Type E or S, Grade B, except that hydrostatic test need not be performed. Pipe shall be Schedule 40, round pipe. Post shall meet the requirements of AASHTO M181, Grade 2. All posts shall be hot-dip galvanized after fabrication and welding of base plates in accordance with ASTM A123.

**Fittings:** All fittings shall be galvanized pressed steel, malleable iron, or aluminum alloy materials meeting the specifications of ASTM F626. Galvanized steel wire for the attachment of the fabric to the post shall not be less than #9 gauge.

**Base Plates:** Base plates shall meet ASTM A36 or greater and shall be shop welded to the fence posts. All burrs and sharp edges shall be removed and smoothed before galvanizing in accordance with ASTM A123.

**Molded Pads:** All molded pads shall be manufactured from new unvulcanized elastomer and unused synthetic fibers, with a weight proportion of fiber content equal to approximately one- half of the total weight of the pad. The pads shall be formed into single sheets of 1/8 inch minimum thickness with a tolerance of plus or minus 10 percent. The pads shall have a durometer hardness within the range of 70 to 90.

**Galvanizing Compound:** Galvanizing compound shall meet the requirements of MIL-DTL-24441/20 Rev. B or Military Specification MIL-P-21035 Rev. B.

All bolts shall meet the requirements of ASTM A307, Grade A. The washers shall be standard, circular plate washers meeting the requirements of ASTM F844. Bolts and washers shall be galvanized in accordance with the requirements of ASTM A153, Class C. A sample anchorage shall be submitted to the Engineer for approval prior to incorporating into the project.

Waterproof silicone rubber sealant shall meet the requirements of Commercial Item A-A-59116.

Materials Certification and Testing: The Contractor shall furnish a Materials Certificate in accordance with Article 1.06.07 for the fabric, posts, rails, fittings, bolts and washers.

### **Construction Methods:**

Before fabricating any materials, the Contractor shall submit Shop Drawings to the Engineer for approval in accordance with Article 1.05.02-3. These drawings shall include the following information: A layout plan showing all post and rail spacing, all baseplate grades, all fence and anchorage details, material lists and material designations and the name and telephone number of a person to contact who can answer questions about the Shop Drawings.

The chain link fence shall be accurately fabricated and installed in accordance with ASTM F567, manufacturer's instructions, the design plans, and as directed by the Engineer.

Terminal posts shall be provided at each fence termination and any change in horizontal or vertical direction of 30° or more. All posts shall be set plumb unless otherwise directed by the Engineer.

Posts shall be located along the existing bridge rail posts as indicated on the approved Shop Drawings. A durable template shall be used to accurately position the drilled holes for the anchor bolts to the existing bridge rail post. The diameter of the holes shall be as specified by the chemical anchor Manufacturer.

All base plates shall have full contact with the existing bridge rail post and shall be caulked all around with a waterproof silicone rubber sealant.

All rails shall be erected to produce a smooth, continuous appearance set plumb vertical.. The fabric shall be stretched tightly between end posts and securely fastened with stretcher bar bands. The fabric shall be attached to the posts and rails as shown on the plans. Dome caps shall be installed on top of all posts.

Chain Link Fabric Installation: Install fabric on the outside of the fence post, pull fabric taut; thread the tension bar through fabric and attach to terminal posts with tension bands spaced maximum of 15" on center and attach so that fabric remains in tension after pulling force is released. Install fabric so that it is 2" +/- 1" above finish grade. Secure fabric using wire ties to line posts at 15" on center and to rails and braces 24" on center, and to the tension wire using hog rings 24" on center. Tie wire shall be secured to the fabric by wrapping it two 360 degree turns around the chain link wire pickets. Cut off any excess wire and bend back so as not to protrude with any vehicle that accidentally crashes into the parapet.

Areas where galvanizing has been damaged shall be repaired in accordance with ASTM A780 with two coats of galvanizing compound.

**Method of Measurement:**

Metal Bridge Rail Protective Fence: This work shall be measured for payment by the number of linear feet of completed and accepted chain link fence of the height specified in the plans, measured from outside to outside of terminal posts.

**Basis of Payment:**

Metal Bridge Rail Protective Fence: This work shall be paid for at the unit price per linear foot for “Metal Bridge Rail Protective Fence” of the height specified in the plans, complete in place, which price shall include all materials, equipment, tools, drilling of anchor supports, disposal of surplus material and labor incidental thereto.

| <u>Pay Item</u>                    | <u>Pay Unit</u> |
|------------------------------------|-----------------|
| Metal Bridge Rail Protective Fence | LF              |

## **ITEM #0904987A – REMOVE AND RESET METAL BRIDGE RAIL**

**Description:** Work under this item shall consist of the removal, storage, and satisfactory re-installation of the existing metal bridge rail complete including, posts, rails and fittings, as shown on the plans and/or as directed by the Engineer. Ends of anchors rods shall be coated with material in accordance with the special provision “Clean and Coat Exposed Reinforcing Steel”.

**Construction Methods:** Construction methods shall conform to the requirements of Article 5.03.03 and Article 9.04 supplemented as follows: The Contractor shall take necessary precautions to prevent debris from dropping to areas below the structure onto the roadway or onto adjacent traffic lanes. All debris shall be promptly cleaned up and removed from the site by the Contractor.

The removal and reinstallation shall not result in damage to the existing metal bridge rail nor any permanent construction (new or existing), adjoining property or the railway below. If any damage does occur, it shall be repaired by the Contractor to the satisfaction of the Engineer at no additional expense to the State.

The storage shall be offsite in a secure yard provided by the contractor. There will be no additional fees for storage of the metal beam rail or its transportation to and from the site.

All work shall proceed in accordance with the special provisions “Maintenance and Protection of Traffic” and “Prosecution and Progress”.

**Method of Measurement:** This work will be measured for payment by the actual number of linear feet of metal bridge rail removed, stored, reinstalled and accepted. Measurement will be made along the centerline of the rail.

**Basis of Payment:** This work will be paid for at the contract unit price per LF for "Remove and Reset Metal Bridge Rail", for the actual length of bridge rail removed, transportation to and off site, storage, and reinstallation, which price shall include all material, equipment, tools and labor incidental thereto.

### **Pay Item**

### **Pay Unit**

Remove and Reset Metal Bridge Rail

LF

## **ITEM #0969054A – CONTRACTOR QUALITY CONTROL PROGRAM**

### **LEVEL 1**

**Description:** The Contractor shall establish, maintain, and implement a written Project-specific Quality Control (QC) Program tailored to the complexity and scope of the work. This Program shall detail the programmatic documentation of the Contractor's processes for delivering the level of construction quality required by the Contract.

The written QC Program shall provide a comprehensive description of the planning, monitoring and reporting program the Contractor shall implement to ensure and document the quality of the work as it progresses.

The QC Program shall address, as a minimum, the following elements: Organization; Design Control; Procurement Control; Control of Subcontractors, Fabricators and Suppliers; Inspection; Special Process Control; Non-Conformance Resolution; Records; and Reporting.

The QC Program shall identify and list critical and routine work categories, which shall be used to differentiate the level of reporting, inspection and attention throughout the process.

The QC Program shall include a method to identify and resolve any deviations from the Contract while maintaining the Project schedule. The QC Program shall include a method to prevent recurring deviations once identified and resolved.

The Contractor shall modify the QC Program as needed to meet the requirements of this specification. The QC Program shall be recognized as a dynamic document, subject to revisions and amendments, as required, in response to actual Site conditions, work methods, and to address deviations encountered and corrected throughout the Project.

The Contractor shall furnish the services of a dedicated (sole responsibility), full-time, on-Site Quality Control Manager (QCM) for the Project. The QCM shall report directly to upper management and shall have the authority to issue stop work orders.

When the Contractor's schedule dictates simultaneous work operations, the Contractor is responsible for supplementing the QCM with additional QC personnel (independent of trade staff) to meet the requirements of this specification.

The additional Contractor Quality Control requirements described herein shall be used in conjunction with the Department's Standard Specifications Form 818. The QC Program is neither intended to relieve the Contractor from its responsibility under the Contract, nor to replace the external inspections of the work carried out by the Engineer.

The minimum lump sum bid for this item shall be **\$100,000**. Failure of the Contractor to bid at least the minimum amount will result in the Department adjusting the Contractor's bid to the minimum bid amount for this item.

## **Construction Methods:**

### **Submittals**

- (1) **QCM:** Within thirty (30) days of Contract award, the Contractor shall submit, in writing, the name of their proposed QCM with a resume of their qualifications, submitted in accordance with the requirements listed below, for concurrence by the Department. The QCM shall not be changed without prior written notification to the Department.

The submittal shall outline the credentials of the proposed QCM, who shall be an individual with demonstrated construction experience. This shall include at least 7 years of experience in any combination of the following areas:

- Field inspection experience
- Construction experience relevant to the type of work and the scope of the Project
- Previous experience as a Quality Control professional

The submittal shall also list any certifications or training in quality control principles (NETTCP Quality Assurance Technologist or approved equal) of the proposed QCM and two (2) letters of recommendation from previous clients.

- (2) **QC Program:** Within forty-five (45) days of Contract award, the Contractor, with direct input from the QCM, shall prepare and submit to the Department, for review and approval, a written QC Program, including the Elements listed below, and in accordance with all requirements of this specification.

Sample forms and reports intended to be used to assure compliance with this specification shall be included in the initial submittal of the QC Program. Sample forms and reports shall include:

- Sample document control tracking form
- Sample design control tracking form (for Contractor design-build items)
- Sample shop drawing/working drawing review
- Sample material receiving inspection report
- Sample inspection forms for critical work categories
- Sample special process control forms
- Sample non-conformance report
- Sample daily and monthly reports

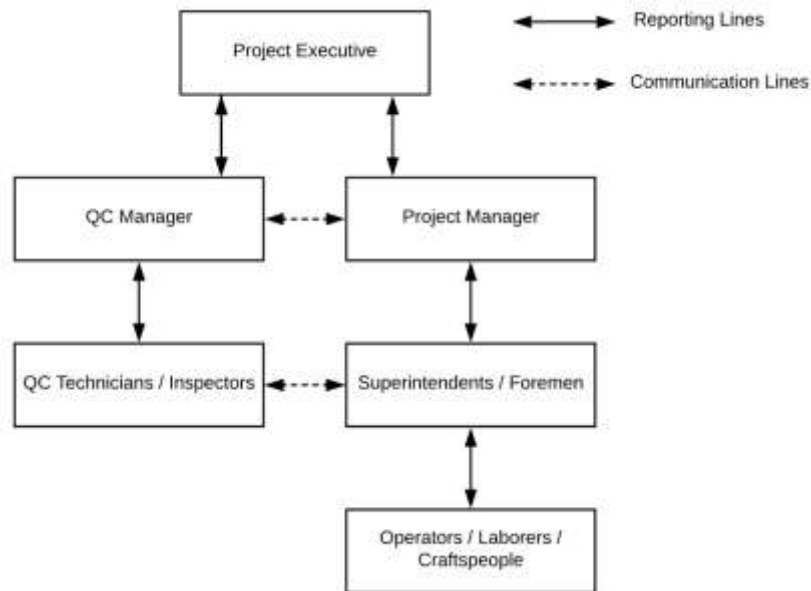
The Contractor's QCM, Project Manager and a representative of their upper management shall sign the final QC Program submission and any revisions or amendments thereto. Any revisions or amendments made to the QC Program shall be submitted in writing to the Engineer for acceptance.

Subcontractors, fabricators and suppliers involved in critical work categories, as defined in the QC Program, shall have their own work-item specific QC Plan which shall be included as an addendum to the Contractor's QC Program, and shall comply with all conditions of this item.

- (3) Additional QC Personnel: When additional QC personnel are required due to simultaneous work operations, the Contractor shall provide resume(s) of qualifications of the proposed personnel at least thirty (30) days in advance of the work. All additional QC personnel utilized for inspecting, sampling, and testing of materials shall be certified by NETTCP (or another entity acceptable to the Department) in the appropriate designation for the work or materials being inspected, sampled, or tested. These individual(s) shall also have demonstrated construction experience of at least 5 years in any combination of the following areas:
- Field inspection experience
  - Construction experience relevant to the type of work and the scope of the Project
  - Previous experience as a Quality Control professional
- (4) Laboratories: All laboratories performing QC testing of Project Produced Materials shall be qualified through either the AASHTO Accreditation Program (AAP) or the NETTCP Laboratory Qualification Program. The Contractor shall provide laboratory proof of qualification at least thirty (30) days in advance of the work.
- (5) Reports: The Contractor shall be required to produce and submit to the Engineer daily and monthly inspection reports as described in the Reporting Element of this specification.

**Elements of the Contractor Quality Control Program:**

**1. Organization:** This Element shall describe the Contractor's organization, including reporting relationships within and external to the Contractor's organization. The name of the QCM shall be clearly stated and this individual shall be responsible to upper management and have the authority to stop work. An organizational chart shall be included to graphically depict the Contractor's organizational structure and major reporting lines and relationships. The organizational chart shall clearly show the hierarchy between the QCM, upper management and additional QC personnel; and a narrative shall follow which shall define the roles, duties and responsibilities of each person in the implementation of the QC Program and in the resolution of QC issues. This Element shall also include the resumes of all QC personnel.



**2. Design Control:** This Element shall describe how the Contractor and the QCM control any design process (i.e. working and shop drawings) for which it is responsible. This shall include the selection of design input data, checking for correctness, completeness, compatibility and format, and reviewing and approving design output documents prior to submission to the Department. This Element shall provide guidance as to how the QCM or other personnel shall indicate that documents have been reviewed by the Contractor prior to submission, and that Department comments have been adequately addressed prior to any required resubmissions.

**3. Procurement Control:** This Element shall describe the methods used by the Contractor and the QCM to assure that all materials and specialized equipment provided for the work are as specified. Included shall be guidelines for documenting that purchase documents have been reviewed to assure that correct details have been ordered, including specification, grade, type, color, Buy America or other aspects as required by the Contract.

This Element shall describe receiving inspection activities to be performed, and documentation required to confirm that the correct material or equipment has been delivered. A list of items requiring Materials Certificates and/or Certified Test Reports shall be developed by the Contractor and included in this Element. The Contractor shall prepare a “Material Receiving Inspection Report” which shall include records of inspections performed and reviews of material test reports or other documentation required by the Contract. It shall also include copies of Materials Certificates and/or Certified Test Reports for all these items.

As a minimum, receiving inspections shall be performed on the following materials:

- Materials requiring a Materials Certificate or Certified Test Report
- Source-Controlled Materials (not inspected at the manufacturing plant)
- Job-Controlled Materials (other than concrete, bituminous and soils)

Following a receiving inspection, a copy of the “Material Receiving Inspection Report,” along with associated documents, shall be submitted to the Engineer.

**4. Control of Subcontractors, Fabricators and Suppliers:** Subcontractors, fabricators and suppliers involved in critical work categories, as defined in 5(a) herein, shall develop their own QC Plan to be added as an addendum to the Contractor's QC Program, which shall comply with all conditions of this item. The Contractor shall be responsible for reporting on QC activities performed by or for subcontractors, fabricators and suppliers.

It is the Contractor's responsibility to notify all subcontractors, fabricators, and suppliers of the requirements of the Contract. This Element shall describe the methods used by the Contractor and the QCM to assure that all the applicable requirements of the Contract are passed on to the subcontractors, fabricators and suppliers. This Element shall include the methods used by the Contractor and the QCM to monitor and control the quality of the work performed by subcontractors, fabricators and suppliers, and to obtain the required quality records.

This Element shall also describe how the Contractor will ensure that:

- The Engineer receives advance notice of:
  - The source of supply
  - The location of fabrication, including component parts
  - The schedule of fabrication, including the date of beginning of fabrication and the date the material is to be delivered to the Project
- Material fabricated specifically for the Project will be inspected and approved prior to being shipped or incorporated into the work
- Properly documented mill test reports are furnished by suppliers
- Subcontractors are approved prior to performing any work for or on the Project

**5. Inspection:** This Element shall describe how the Contractor and the QCM will assure that the specified quality of materials and workmanship will be achieved. The Contractor's QC Program is not related to any inspection carried out by the Engineer. Inspection will include the identification and tracking of the quality characteristics (metrics) used to verify that the level of quality of materials and workmanship meet the requirements of the Contract.

The QC Program shall identify the reporting requirements for each item based on its work category, and these reporting requirements will be approved by the Engineer. The work categories will be identified as **critical** or **routine**.

**(a) Critical Work Categories:** For this Project, critical work categories shall include the following:

- Construction Surveying
- Maintenance & Protection of Traffic
- Subbase and Base Material
- Hot Mix Asphalt
- Drainage
- Bridge Demolition
- Reinforcing Steel
- Structural Steel
- Structural Concrete

- Electrical
- Environmental Compliance
- Permit Compliance

The QCM shall be familiar with all aspects of work related to critical work categories and no work shall be performed on these categories without the prior knowledge of the QCM. The QC Program shall define specific means and methods that shall be employed to minimize, identify, resolve and prevent recurrence of deviations from the Contract in regards to materials or workmanship for each of the critical work categories listed.

The QC Program shall identify hold points in the critical work categories beyond which work operations cannot proceed until the QCM and the Engineer have inspected the work in place and releases the hold.

When simultaneous critical work categories are required by the Contractor's schedule, additional QC personnel shall be required.

This Element shall describe the system(s) used to assure that all materials and workmanship for critical work categories are in accordance with the Contract, including:

- visual inspection of the work, including frequency and hold points
- materials to be tested
- tests to be conducted
- frequency of testing
- locations of sampling
- checks
- intermittent or continuous inspections
- inspections of completed work
- or a combination of above methods

Quality control reporting forms shall be developed to document the work performed by the QCM and QC personnel, on each of these critical work categories. The forms shall be signed by Contractor supervisory field personnel, the QCM and QC personnel (if applicable), to document conformance of the work being performed. All work performed by the QCM and QC personnel on these critical work categories shall be documented and included in the QCM's daily and monthly reports.

**(b) Routine Work Categories:** All other work categories not covered by 6(a) will be defined as routine work categories and the general provisions of this specification shall apply.

**6. Special Process Control:** This Element shall describe the measures to be used to assure that any special processes (such as, welding, high-strength bolting, nondestructive examination, critical coatings, surveys, and control of critical tolerances) shall be controlled by procedures that are described in and comply with the Contractor's approved QC Program. The recording of

results shall properly document that processes are in conformance with the Contract. In addition, this Element shall describe the methods used to verify, document and track any pre-qualification of the processes, personnel and equipment where required by the Contract.

**7. Non-Conformance Resolution:** This Element shall describe the protocol(s) for correcting any material or workmanship found not to be in compliance with the Contract, the reporting requirements for documenting any non-compliance, subsequent corrective measures and issue resolution.

**(a) Contractor-Issued Non-Conformance Reports:** This Element shall outline the Contractor's use of self-issued non-conformance reports to document actions taken to identify, resolve and prevent recurring deviations. The non-conformance reports shall include signatures of the responsible persons for each process of the corrective action taken. Upon resolution of a non-conformance issue, the QC Program shall be revised to identify preventive measures that shall be taken to prevent similar deviations. Contractor supervisory field personnel involved in the work shall be informed of any changes implemented to avoid recurrence of deviations.

**(b) Engineer-Issued Non-Compliance Notices (NCN):** Non-compliance notices (NCNs) issued by the Engineer shall also be an indication of non-conformance and shall be addressed according to 1.05.11 and resolved to the satisfaction of the Engineer. Upon resolution, the QC Program shall be revised to identify preventive measures that shall be taken to prevent similar deviations. Contractor supervisory field personnel involved in the work shall be informed of any changes implemented to avoid recurrence of deviations.

**8. Records:** This Element shall describe how various records generated by the Contractor are originated, maintained, received, filed, protected and authenticated. Quality Control records required for submittal to the Engineer shall be described. This Element shall outline the Contractor's procedure for retaining records for a period of 3 years after acceptance of the Contract.

**9. Reporting: QC Inspection Reports:** The Contractor shall be required to produce and submit to the Engineer daily and monthly inspection reports in accordance with all requirements of this specification. The QC Program shall clearly define the information that shall be provided as part of the daily and monthly reports.

**(a) Daily Reports:** Daily reports shall include documentation of all activities, including inspection, material testing, and any work associated with the Elements of this specification, performed by the QCM and other QC personnel. The location of any forms relative to this specification shall be referenced in the daily reports.

For any week that a non-conformance report is issued, either by the Contractor or the Engineer, actions taken to resolve the non-conformance report shall be summarized and included with the submission of the daily reports. Updates on the status of the non-conformance shall continue in each submission of daily reports until the non-conformance issue is resolved. Once resolved, the next submission of daily reports shall document that supervisory field personnel involved in the work have been informed of any changes to be implemented to avoid recurrence of deviations. Any revisions or amendments made to the

QC Program, once submitted and accepted by the Engineer, shall be documented in the next submission of daily reports.

Daily reports shall be submitted (as a package) to the Engineer by 12 PM on the Tuesday following the week of the inspection reports, or as agreed to by the Engineer. Except as otherwise authorized by the Engineer, submissions after that time will be considered late.

**(b) Monthly Reports:** Monthly reports shall include a summary of the work performed, including QC activities, in the previous month and also a one (1) month “look ahead” schedule with expected QC efforts and procedures for critical and routine work categories. Monthly reports shall also include a submittal status update spreadsheet.

Monthly reports shall be submitted to the Engineer by the fifth (5th) business day each month. Except as otherwise authorized by the Engineer, monthly submissions after that time will be considered late.

**(c) Quality Assurance/Quality Control (QA/QC) Meetings:** Meetings shall be held specific to the QC Program. The Contractor shall, at minimum, be represented by the QCM and shall meet with the Engineer every other week, or more frequently at the Engineer’s request, to review reporting and all work related to this specification.

**Method of Measurement:** Within forty-five (45) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for approval a schedule of values of its lump sum bid price for this item detailing the following:

1. The development costs to prepare the written QC Program. Development costs shall be ten percent (10%) of the total cost of the item.
2. The cost per-month to provide the services of the QC Program, including the QCM, QC activities, necessary QC personnel, preparing and submitting daily and monthly reports, and all other requirements of this specification. A per-month cost will be derived by taking the lump sum bid price, subtracting the development cost to prepare the written QC Program, and dividing the remainder by the number of Contract months remaining from the date of submission of the written QC Program.

**Basis of Payment:** This item will be paid for at the Contract lump sum price for “Contractor Quality Control Program Level 1” complete, which price shall include all submittals, QC Program revisions and amendments, inspections, monitoring, daily logs, reports, meetings, records, and all materials, equipment, labor and work incidental thereto.

Upon approval of the schedule of values by the Engineer, payments for work performed will be made as follows:

1. Upon acceptance of the written QC Program, the lump sum development cost from the payment schedule will be approved for payment.
2. Upon acceptable completion of the services of the QC Program for the month, the per-month cost will be approved for payment.

The Engineer reserves the right to apply the following reductions to the monthly payment portion, which cannot be recovered and will result in a reduction in the lump sum amount, should the Contractor fail to meet the requirements of this specification:

1. QC staff: A five percent (5%) reduction to the monthly payment will be applied for each day that acceptable QC services are not provided. The total reduction for any calendar month will not exceed the monthly payment for the item.
2. Reports: A five percent (5%) reduction to the monthly payment will be applied for each day that the required reports have been submitted late, up to a maximum of fifty percent (50%) of the monthly payment per report. This five percent (5%) reduction will apply to each independent report (each package of daily reports, described in 9(a) above, submitted on a weekly basis is considered one independent report). The total reduction for any calendar month will not exceed the monthly payment for the item.
3. QA/QC Meetings: A twenty-five percent (25%) reduction to the monthly payment will be applied for each bi-weekly QA/QC meeting not attended by the QCM. The total reduction for any calendar month will not exceed the monthly payment for the item.

Should the Contractor fail to continuously provide an acceptable QC Program, as required by this specification, the Engineer may withhold the entire monthly estimate until such time as all requirements are met.

Should the Contractor fail to comply with the QCM requirements of this specification, the QCM shall be replaced at the Engineer's request.

Only one monthly payment will be made for each calendar month regardless of the number of personnel required to complete the specified work.

| <b><u>Pav Item</u></b>                     | <b><u>Pav Unit</u></b> |
|--|------------------------|
| Contractor Quality Control Program Level 1 | l.s.                   |

## **ITEM #0969064A – CONSTRUCTION FIELD OFFICE, LARGE**

**Description:** Under the item included in the bid document, adequate weatherproof office quarters with related furnishings, materials, equipment and other services, shall be provided by the Contractor for the duration of the work, and if necessary, for a close-out period determined by the Engineer. The office, furnishings, materials, equipment, and services are for the exclusive use of CTDOT forces and others who may be engaged to augment CTDOT forces with relation to the Contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02. This office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

**Furnishings/Materials/Supplies/Equipment:** All furnishings, materials, equipment and supplies shall be in like new condition for the purpose intended and require approval of the Engineer.

**Office Requirements:** The Contractor shall furnish the office quarters and equipment as described below:

| Description \ Office Size   | Large |
|---|-------|
| Minimum Sq. Ft. of floor space with a minimum ceiling height of 7 ft. | 1000  |
| Minimum number of exterior entrances.                                 | 2     |
| Minimum number of parking spaces.                                     | 10    |

**Office Layout:** The office shall have a minimum square footage as indicated in the table above, and shall be partitioned as shown on the building floor plan as provided by the Engineer.

**Tie-downs and Skirting:** Modular offices shall be tied-down and fully skirted to ground level.

**Lavatory Facilities:** For field offices sizes Small and Medium the Contractor shall furnish a toilet facility at a location convenient to the field office for use by CTDOT personnel and such assistants as they may engage; and for field offices sizes Large and Extra Large the Contractor shall furnish two (2) separate lavatories with toilet (men and women), in separately enclosed rooms that are properly ventilated and comply with applicable sanitary codes. Each lavatory shall have hot and cold running water and flush-type toilets. For all facilities the Contractor shall supply lavatory and sanitary supplies as required.

**Windows and Entrances:** The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the CTDOT and will be kept in their possession while State personnel are using the office. Any access to the entrance ways shall meet applicable building codes, with appropriate handrails. Stairways shall be ADA/ABA compliant and have non-skid tread surfaces. An ADA/ABA compliant ramp with non-skid surface shall be provided with the Extra-Large field office.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

Parking Facility: The Contractor shall provide a parking area, adjacent to the field office, of sufficient size to accommodate the number of vehicles indicated in the table above. If a paved parking area is not readily available, the Contractor shall construct a parking area and driveway consisting of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel, wiring, outlets, etc., to serve the electrical requirements of the field office, including: lighting, general outlets, computer outlets, calculators etc., and meet the following minimum specifications:

- A. 120/240 volt, 1 phase, 3 wire
- B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
- C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
- D. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each desk and personal computer table (workstation) location.
- E. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
- F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
- G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120 volt, straight blade.
- H. After work is complete and prior to energizing, the State's CTDOT electrical inspector, must be contacted at 860-594-2240. (Do Not Call Local Town Officials)
- I. Prior to field office removal, the CTDOT Office of Information Systems (CTDOT OIS) must be notified to deactivate the communications equipment.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient heating, air conditioning and ventilation equipment to maintain a temperature range of 68°-80° Fahrenheit within the field office.

Telephone Service: The Contractor shall provide telephone service with unlimited nation-wide calling plan. For a Small, Medium and Large field office this shall consist of the installation of two (2) telephone lines: one (1) line for phone/voice service and one (1) line dedicated for the facsimile machine. For an Extra-Large field office this shall consist of four (4) telephone lines: three (3) lines for phone/voice service and one (1) line dedicated for facsimile machine. The Contractor shall pay all charges.

Data Communications Facility Wiring: Contractor shall install a Category 6 568B patch panel in a central wiring location and Cat 6 cable from the patch panel to each PC station, Smart Board location, Multifunction Laser Printer/Copier/Scanner/Fax, terminating in a (Category 6 568B) wall or surface mount data jack. The central wiring location shall also house either the data circuit with appropriate power requirements or a category 5 cable run to the location of the installed data circuit. The central wiring location will be determined by the CTDOT OIS staff in coordination with the designated field office personnel as soon as the facility is in place.

For Small, Medium and Large field offices the Contractor shall run a CAT 6 LAN cable a minimum length of 25 feet for each CTDOT networked device (including but not limited to: smartboards and Multi-Function Laser Printer/Copier/Scanner/Fax) to LAN switch area leaving an additional 10 feet of cable length on each side with terminated RJ45 connectors. For an Extra-Large field office the Contractor shall run CAT 6 LAN cables from workstations, install patch panel in data circuit demark area and terminate runs with RJ45 jacks at each device location. Terminate runs to patch panel in LAN switch area. Each run / jack shall be clearly labeled with an identifying Jack Number.

The Contractor shall supply cables to connect the Wi-Fi printer to the Contractor supplied internet router and to workstations/devices as needed. These cables shall be separate from the LAN cables and data Jacks detailed above for the CTDOT network.

The number of networked devices anticipated shall be at least equal to the number of personal computer tables, Multi-Function Laser Printer/Copier/Scanner/Fax, and smartboards listed below.

The installation of a data communication circuit between the field office and the CTDOT OIS in Newington will be coordinated between the CTDOT District staff, CTDOT OIS staff and the local utility company once the Contractor supplies the field office phone numbers and anticipated installation date. The Contractor shall provide the field office telephone number(s) to the CTDOT Project Engineer within 10 calendar days after the signing of the Contract as required by Article 1.08.02. This is required to facilitate data line and computer installations.

Additional Equipment, Facilities and Services: The Contractor shall provide at the field Office at least the following to the satisfaction of the Engineer:

| Furnishing Description  | Office Size<br>Large |
|---|----------------------|
|   | Quantity             |
| Office desk (2.5 ft. x 5 ft.) with drawers, locks, and matching desk chair that have pneumatic seat height adjustment and dual wheel casters on the base.   | 5                    |
| Standard secretarial type desk and matching desk chair that has pneumatic seat height adjustment and dual wheel casters on the base.  | -                    |
| Personal computer tables (4 ft. x 2.5 ft.).   | 5                    |
| Drafting type tables (3 ft. x 6 ft.) and supported by wall brackets and legs; and matching drafters stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base. | 1                    |
| Conference table, 3 ft. x 12 ft.  | -                    |
| Table – 3 ft. x 6 ft.   | -                    |
| Office Chairs.  | 8                    |
| Mail slot bin – legal size.   | 1                    |
| Non-fire resistant cabinet.   | 2                    |
| Fire resistant cabinet (legal size/4 drawer), locking.  | 2                    |
| Storage racks to hold 3 ft. x 5 ft. display charts.   | 1                    |
| Vertical plan racks for 2 sets of 2 ft. x 3 ft. plans for each rack.  | 2                    |
| Double door supply cabinet with 4 shelves and a lock – 6 ft. x 4 ft.  | 1                    |
| Case of cardboard banker boxes (Min 10 boxes/case)  | 2                    |
| Open bookcase – 3 shelves – 3 ft. long.   | 2                    |
| White Dry-Erase Board, 36" x 48" min. with markers and eraser.  | 1                    |
| Interior partitions – 6 ft. x 6 ft., soundproof type, portable and freestanding.  | 6                    |
| Coat rack with 20 coat capacity.  | -                    |
| Wastebaskets - 30 gal., including plastic waste bags.   | 1                    |
| Wastebaskets - 5 gal., including plastic waste bags.  | 6                    |
| Electric wall clock.  | -                    |
| Telephone.  | 1                    |
| Full size stapler 20 (sheet capacity, with staples)   | 5                    |
| Desktop tape dispensers (with Tape)   | 5                    |
| 8 Outlet Power Strip with Surge Protection  | 6                    |
| Rain Gauge  | 1                    |

|  |   |
|--|---|
| Business telephone system for three lines with ten handsets, intercom capability, and one speaker phone for conference table.  | - |
| Mini refrigerator - 3.2 c.f. min.  | 1 |
| Hot and cold water dispensing unit. Disposable cups and bottled water shall be supplied by the Contractor for the duration of the project.   | 1 |
| Microwave, 1.2 c.f. , 1000W min.   | 1 |
| Fire extinguishers - provide and install type and *number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire. | * |
| Electric pencil sharpeners.  | 2 |
| Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.  | 2 |
| Small Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under <u>Computer Related Hardware and Software</u> .  |   |
| Large Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under <u>Computer Related Hardware and Software</u> .  | 1 |
| Field Office Wi-Fi Connection as specified below under <u>Computer Related Hardware and Software</u>   | 1 |
| Wi-Fi Printer as specified below under <u>Computer Related Hardware and Software</u> .   | 1 |
| Digital Camera as specified below under <u>Computer Related Hardware and Software</u> .  | 3 |
| Video Projector as specified below under <u>Computer Related Hardware and Software</u> .   | - |
| Smart Board as specified below under <u>Computer Related Hardware and Software</u> .   | - |
| Infrared Thermometer, including annual third party certified calibration, case, and cleaning wipes.  | 1 |
| Concrete Curing Box as specified below under Concrete Testing Equipment.   | 1 |
| Concrete Air Meter and accessories as specified below under Concrete Testing Equipment as specified below. Contractor shall provide third party calibration on a quarterly basis.                            | 1 |
| Concrete Slump Cone and accessories as specified below under Concrete Testing Equipment.   | 1 |
| First Aid Kit  | 1 |

|  |   |
|--|---|
| Flip Phones as specified under <u>Computer Related Hardware and Software.</u>  | - |
| Smart Phones as specified under <u>Computer Related Hardware and Software.</u> | - |

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Computer Related Hardware and Software: The CTDOT will supply by its own means the actual Personal Computers for the CTDOT representatives. The Contractor shall supply the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors, and Smart Board(s) as well as associated hardware and software, must meet the requirements of this specification as well as the latest minimum specifications posted, as of the project advertising date, at CTDOTs web site <http://www.ct.gov/dot/cwp/view.asp?a=1410&q=563904>

Within 10 calendar days after the signing of the Contract but before ordering/purchasing the Wi-Fi Printer (separate from the Multifunction Laser Printer/Copier/Scanner/Fax), Field Office Wi-Fi, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projector(s) and Smart Board(s) as well as associated hardware, the Contractor must submit a copy of their proposed order(s) with catalog cuts and specifications to the Administering CTDOT District for review and approval. The Wi-Fi Printer, Wi-Fi Router, Flip Phones, Smart Phones, digital cameras, Projector(s) and Smart Board(s) will be reviewed by CTDOT District personnel. The Multifunction Laser Printer/Copier/Scanner/Fax will be reviewed by the CTDOT OIS. The Contractor shall not purchase the hardware, software, or services until the Administering CTDOT District informs them that the proposed equipment, software, and services are approved. The Contractor will be solely responsible for the costs of any hardware, software, or services purchased without approval.

The Contractor and/or their internet service provider shall be responsible for the installation and setup of the field office Wi-Fi, Wi-Fi printer, and the configuration of the wireless router as directed by the CTDOT. Installation will be coordinated with CTDOT District and Project personnel.

After the approval of the hardware and software, the Contractor shall contact the designated representatives of the CTDOT administering District, a minimum of 2 working days in advance of the proposed delivery or installation of the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors and Smart Board(s), as well as associated hardware, software, supplies, and support documentation.

The Contractor shall provide all supplies, paper, maintenance, service and repairs (including labor and parts) for the Wi-Fi printers, copiers, field office Wi-Fi, fax machines and other equipment and facilities required by this specification for the duration of the Contract. All repairs must be

performed with-in 48 hours. If the repairs require more than a 48 hours then an equal or better replacement must be provided.

Once the Contract has been completed, the hardware and software will remain the property of the Contractor.

First Aid Kit: The Contractor shall supply a first aid kit adequate for the number of personnel expected based on the size of the field office specified and shall keep the first aid kit stocked for the duration that the field office is in service.

Rain Gauge: The Contractor shall supply install and maintain a rain gauge for the duration of the project, meeting these minimum requirements. The rain gauge shall be installed on the top of a post such that the opening of the rain gauge is above the top of the post an adequate distance to avoid splashing of rain water from the top of the post into the rain gauge. The Location of the rain gauge and post shall be approved by the Engineer. The rain gauge shall be made of a durable material and have graduations of 0.1 inches or less with a minimum total column height of 5 inches. If the rain gauge is damaged the Contractor shall replace it prior to the next forecasted storm event at no additional cost.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following equipment.

- A) Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.
- B) Air Meter – The air meter provided shall be in good working order and meet the requirements of AASHTO T 152.
- C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

All testing equipment will remain the property of the Contractor at the completion of the project.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of five thousand dollars (\$5,000) in order to insure all State-owned data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the CTDOT shall be an additional named insured on the policy. These losses shall include, but not be limited to: theft, fire, and physical damage. The CTDOT will be responsible for all maintenance costs of CTDOT owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current CTDOT equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement equipment within seven days, the CTDOT may provide replacement equipment and deduct the cost of the equipment from monies due or which may become due the Contractor under the Contract or under any other contract. The Contractor's financial liability under this paragraph shall be limited to

the amount of the insurance coverage required by this paragraph. If the cost of equipment replacement required by this paragraph should exceed the required amount of the insurance coverage, the CTDOT will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

**Maintenance:** During the occupancy by the CTDOT, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of weekly professional cleaning to include, but not limited to, washing & waxing floors, cleaning restrooms, removal of trash, etc. Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

**Method of Measurement:** The furnishing and maintenance of the construction field office will be measured for payment by the number of calendar months that the office is in place and in operation, rounded up to the nearest month.

There will not be any price adjustment due to any change in the minimum computer related hardware and software requirements.

**Basis of Payment:** The furnishing and maintenance of the Construction Field Office will be paid for at the Contract unit price per month for “Construction Field Office, (Large),” which price shall include all material, equipment, labor, service contracts, licenses, software, repair or replacement of hardware and software, related supplies, utility services, parking area, external illumination, trash removal, snow and ice removal, and work incidental thereto, as well as any other costs to provide requirements of this specified this specification.

**Pay Item**

Construction Field Office, Large

**Pay Unit**

month

## **ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC**

**Article 9.71.01 – Description** *is supplemented by the following:*

The Contractor shall maintain and protect traffic as described by the following and as limited in the special provision for Section 1.08 - Prosecution and Progress:

### **Route 8**

The Contractor shall maintain and protect the minimum number of through lanes and shoulders on a paved travel path not less than 12 feet in width per lane during the hours dictated in the special provision for Article 1.08.04 – Limitation of Operations.

The Contractor will be allowed to maintain one lane of traffic on Route 8 northbound and one lane of traffic on Route 8 southbound to complete all work associated with the expansion joint reconstruction over four (4)-fifty six (56) hour work periods. The Contractor will be permitted to begin implementing the M&PT plan along Route 8 beginning no earlier than 9:00 p.m. on Friday and concluding at 5:00 a.m. on Monday at the latest. The Contractor shall work continuously until all work is done for the particular period. The work shall occur over two consecutive weekends at each bridge. The 56-hour work period will be utilized for the partial reconstruction of the deck and backwall and construction of the expansion joints in accordance with the Maintenance and Protection of Traffic Plans contained in the contract plans. The Contractor shall provide the required number of crews and all necessary equipment to complete this work within the time period specified. The Contractor shall provide the Engineer with an hour by hour schedule along with a detailed sequence of operations for the work to be performed in the 56-hour period, at least 14 days prior to the anticipated starting date for review and approval by the Department.

The Contractor will be allowed to close the shoulder along Route 8 to complete all work associated with the construction of the end block for metal beam rail attachment.

The Contractor will be permitted to halt traffic during the allowable periods. If more than one 10 minute period is required, then the Contractor shall allow all stored vehicles to proceed through the work area prior to the next stoppage.

### **Limited-Access Highway Ramps**

The Contractor shall maintain and protect existing traffic operations, with the following exceptions:

1. During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect a minimum of 1 lane of traffic on a paved travel path not less than 12 feet in width.

### **Platts Mill Road**

The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width, with the following exceptions:

1. During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width and no more than 300 feet in length, unless specified elsewhere in the Contract. There shall be no more than one alternating one-way traffic operation within the Project limits without prior approval of the Engineer.

### **Water Treatment Plant Service Road**

The Contractor shall maintain and protect the existing travelway for the Water Treatment Plant Service Road under the bridges at Site 1 and Site 2 at all times. The Contractor will be permitted to temporarily close Service Road while actively working with coordination and permission from the owner.

### **Commercial and Residential Driveways**

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the Project limits. The Contractor will be permitted to temporarily close affected driveways while actively working with coordination and permission from the owner or proprietor.

### **Article 9.71.03 - Construction Methods** *is supplemented as follows:*

#### **General**

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction. The unpaved section shall be the full width of the road and shall be perpendicular to the travel lanes. The Contractor will be allowed to maintain traffic on processed aggregate for a duration not to exceed 10 calendar days and opposing traffic lane dividers shall be used as a centerline.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific Contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway or bridge section by the end of a work shift, or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall then install the final course of bituminous concrete pavement.

The Contractor, during the course of any active overhead construction work, shall close the lanes directly below the work area for the entire length of time overhead work is being undertaken.

At no time shall an overhead sign be left partially removed or installed.

When an existing sign is to be relocated or replaced, the work shall be completed during the same work shift.

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

On limited-access highways, construction vehicles entering travel lanes shall not be allowed without a lane closure. The lane closure shall be of sufficient length to allow vehicles to enter or exit the work area at the posted speed limit, in order to merge with existing traffic.

### **Existing Signing**

The Contractor shall maintain all existing overhead and side-mounted signs within the Project limits throughout the duration of the Project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and shall install temporary sign supports if necessary and as directed by the Engineer.

### **Requirements for Winter**

The Contractor shall schedule a meeting with representatives of the Department, including the offices of Maintenance and Traffic, and the City of Waterbury to determine any interim traffic control measures the Contractor shall accomplish prior to winter to provide safety to motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

### **Signing Patterns**

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

### **Pavement Markings - Limited Access Highways, Turning Roadways and Ramps**

During construction, the Contractor shall maintain all pavement markings throughout the limits of the Project.

Temporary pavement markings shall be installed on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift.

Permanent Epoxy Resin Pavement Markings shall be installed on the final course of bituminous concrete pavement within 10 calendar days of the final pavement installation if no Pavement Marking Grooves are proposed.

### **Temporary Pavement Markings**

Temporary pavement markings shall consist of temporary painted pavement markings and shall be installed in accordance with Section 12.09. The markings shall include 4 inch wide white lane lines (solid and broken), 4 inch wide edge lines, lane-use arrows at the stop bar. Temporary 12 inch wide white stop bars shall consist of temporary pavement marking tape, as described below.

Refer to Pavement Marking Groove special provisions for pavement marking requirements.

Temporary 12 inch wide white stop bars consisting of temporary plastic pavement marking tape shall be installed on exit ramps if permanent Epoxy Resin Pavement Markings are not installed by the end of the work shift on the final course of bituminous concrete pavement. Temporary stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of these markings when the permanent Epoxy Resin Pavement Markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape is included under the applicable temporary pavement marking items.

All temporary pavement markings exposed throughout the winter shall be Epoxy Resin Pavement Markings, unless directed otherwise by the Engineer.

Temporary pavement markings, as described above, shall be maintained until the permanent pavement markings are installed.

### **Final Pavement Markings**

Refer to Pavement Marking Groove special provisions for pavement marking requirements. Permanent epoxy resin pavement markings shall be installed in accordance with Section 12.10 and the applicable Traffic Engineering Standard Drawings.

If Temporary Plastic Pavement Marking Tape is installed, then the Contractor shall remove and dispose of these markings during the same work shift that the permanent epoxy resin pavement markings are to be installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be paid for under the appropriate pay items.

### **Traffic Control During Construction Operations**

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for a safer and more efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

### **Traffic Control Patterns**

Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder or is within the clear

zone. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic.
- Duration of operation.
- Exposure to hazards.

Traffic control patterns shall be uniform, neat, and orderly in order to command respect from the motorist.

Lane reduction tapers should be placed so that the entire length of the taper is installed on a tangent section of roadway and the entire taper area can be seen by the motorist.

All existing conflicting signs shall be removed, covered with an opaque material, or turned so that they are not legible to oncoming traffic prior to implementing a traffic control pattern. The existing signs shall be uncovered or reinstalled once the pattern is removed.

A buffer area should be provided during installation of a traffic control pattern and maintained for the duration of the work. The buffer area shall be free of any equipment, workers, materials, and parked vehicles.

Construction Traffic Control Plans 19 through 25 should be used for moving operations such as line striping, rumble strips, pothole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns are not required for vehicles on an emergency patrol type activity or for a short duration stop of up to one hour, as long as the equipment is contained within the shoulder. Flashing lights, arrow boards, truck-mounted or trailer-mounted impact attenuators, and appropriate Trafficperson(s) shall be used when required.

In a situation not adequately covered by the Construction Traffic Control Plans, the Contractor shall contact the Engineer for assistance prior to setting up a traffic control pattern.

### **Placement of Signs**

Signs shall be placed in a position that allows motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads) where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

### **Allowable Adjustment of Signs and Devices Shown on the Construction Traffic Control Plans**

The Construction Traffic Control Plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans.

The proper application of the Construction Traffic Control Plans and installation of traffic control devices is dependent upon actual field conditions.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

Adjustments to the Construction Traffic Control Plans shall only be made at the direction of the Engineer.

Table 1 indicates the minimum taper lengths required for a lane closure based on the posted speed limit and lane width of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the Construction Traffic Control Plans cannot be achieved.

**Table 1 – Minimum Taper Length**

| POSTED SPEED<br>LIMIT<br>(MPH) | MINIMUM TAPER LENGTH<br>FOR A SINGLE LANE CLOSURE (FEET) |                 |
|--------------------------------|--|-----------------|
|                                | FREEWAYS   | SECONDARY ROADS |
| 30 OR LESS                     | 180  | 165             |
| 35                             | 245  | 225             |
| 40                             | 320  | 295             |
| 45                             | 540  | 495             |
| 50                             | 600  | 550             |
| 55                             | 660  | 605             |
| 65                             | 780  | 715             |

## **1. Work Zone Safety Meetings**

- 1.a) Prior to the commencement of work, a Work Zone Safety Meeting shall be conducted with representatives from DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the Project. DOT Traffic Engineering shall be invited to the Work Zone Safety Meeting. Other Work Zone Safety Meetings during the course of the Project should be scheduled as needed.
- 1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the Meeting to outline the anticipated traffic control issues during the construction of this Project. Any issues that can't be resolved at these Meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda shall include:
  - i. Review Project scope of work and time;
  - ii. Review Section 1.08, Prosecution and Progress;
  - iii. Review Section 9.70, Trafficpersons;
  - iv. Review Section 9.71, Maintenance and Protection of Traffic;
  - v. Review Contractor's schedule and method of operations;
  - vi. Review special concern areas: ramps, turning roadways, medians, lane drops, etc.;
  - vii. Open discussion of work zone questions and issues;
  - viii. Discussion of review and approval process for changes in Contract requirements as they relate to work zone areas.

## **2. General**

- 2.a) Traffic control patterns shall only be installed if the required minimum number of signs, traffic cones, traffic drums, and other equipment (i.e. one Arrow Board for each lane closed, two Truck-Mounted or Trailer-Mounted Attenuators (TMAs), Changeable Message Sign, etc.) are on Site.
- 2.b) The Contractor shall have spare maintenance and protection of traffic equipment (TMAs, Arrow Board, Changeable Message Sign(s), construction signs, traffic cones, traffic drums, etc.) available at all times in case of mechanical failures, etc. Spare maintenance and protection of traffic equipment installed as a result of a sudden equipment breakdown shall be replaced by the Contractor within 24 hours.
- 2.c) Failure of the Contractor to have the required minimum number of signs, personnel, and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for lost time.
- 2.d) In cases of differences of opinion between the Contractor and the Inspection staff, the Contractor shall follow the directions of the Engineer. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

### **3. Installing and Removing Traffic Control Patterns**

- 3.a) Lane closures shall be installed beginning with the advance warning signs and proceeding forward toward the work area.
- 3.b) Lane closures shall be removed in the reverse order, beginning at the end of the work area, or traffic control pattern, and proceeding back toward the advance warning signs.
- 3.c) Stopping traffic may be allowed within the allowable hours stated in Section 1.08.04:
  - i. For those activities stated within the Contract.
  - ii. During paving, milling operations, or similar activities where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway so traffic does not travel across the longitudinal joint or difference in roadway elevation.
  - iii. To move slow moving equipment across live traffic lanes into the work area.
- 3.d) The Contractor shall adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 3.e) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging with or exiting from the mainline traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 3.f) Workers are prohibited from crossing the travel lanes on limited access roadways to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

### **4. Implementation of Rolling Road Block (RRB)**

- 4.a) Temporary road closures using a RRB may be allowed on limited access highways for operations associated with the installation and removal of temporary lane closures. RRB may be allowed for the installation and removal of lead signs and lane tapers only and shall meet the following requirements:
  - i. Refer to the Limitation of Operations Chart provided in Section 1.08.04 for the hours allowed for implementing a RRB operation. The Contractor shall only implement a RRB operation within the hours shown in the Chart.
  - ii. In areas with good sight lines and full shoulders, signs on the side of the road opposite the traffic pattern should be installed in a separate operation.
  - iii. TMAs equipped with Arrow Boards shall be used to slow traffic to implement the RRB. State Police Officers in marked vehicles may be used to support the implementation of the RRB. The RRB shall start by having all vehicles, including TMAs and police vehicles, leave the shoulder or on-ramp and accelerate to normal roadway speeds in each lane. The vehicles will then position themselves side by side and decelerate to the RRB speed on the highway.

- iv. A Pre-Warning Vehicle, as specified elsewhere in the Contract, shall be used to advise the motorists that sign pattern installation or removal is underway.
- v. The RRB duration shall not exceed 15 minutes from the start of the traffic block until all lanes are opened as designated in the Limitation of Operations chart. If the RRB duration exceeds 15 minutes on 2 successive shifts, no further RRB will be allowed until the Contractor obtains approval for a revised installation procedure from the District.
- vi. RRB shall not be used to expand a lane closure pattern to an additional lane during the shift. The workers and equipment required to implement the additional lane closure should be staged from within the closed lane. TMAs (and State Police if available) shall be used to protect the workers installing the taper in the additional lane.
- vii. Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days shall be allowed for review and comment by the District.
- viii. The Engineer and the Contractor will review and discuss the RRB procedures (including any revisions) in advance of the work. The implementation of the agreed upon plan will be reviewed with the State Police during the Work Zone Safety Meeting held before each shift involving temporary lane closures. If the State Police determine that alternative procedures should be implemented for traffic control during the work shift, the Department and Contractor will attempt to resolve any discrepancies with the duty sergeant at the Troop. If the discrepancies are unable to be resolved prior to the start of the shift, then the work will proceed as recommended by the Department. Any unresolved issues shall be addressed the following day.

## **5. Use of Arrow Boards**

- 5.a) On limited access roadways, one Arrow Board shall be used for each lane that is closed. The Arrow Board shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the Construction Traffic Control Plans. Additional Arrow Boards shall be deployed if sight distances are limited.
- 5.b) On non-limited access roadways, the use of an Arrow Board for lane closures is optional. The roadway geometry, sight distance, and traffic volume shall be considered in the decision to use the Arrow Board.
- 5.c) A vehicle displaying an arrow board shall be equipped with high-intensity rotating, flashing, oscillating, or strobe lights.
- 5.d) The flashing arrow mode shall be used for lane closure (merge) tapers.
- 5.e) The flashing arrow mode shall not be used for temporary alternating one-way traffic operations or to laterally shift lanes of traffic.

- 5.f) The flashing double arrow mode shall only be used for closing a center lane on a multilane roadway where adjacent left and right lanes remain open.
- 5.g) For shoulder work or roadside work near the shoulder, the Arrow Board shall be positioned in the shoulder and the flashing alternating diamond mode should be used.
- 5.h) The flashing alternating diamond caution mode should also be used when supplemental Arrow Boards are positioned in an already closed lane.

#### **6. Use of Truck-Mounted or Trailer-Mounted Impact Attenuators (TMAs)**

- 6.a) On limited access roadways, lane closures shall use a minimum of two TMAs to install and remove traffic control patterns. If two TMAs are not available, then the pattern shall not be installed.
- 6.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to utilize the TMAs.
- 6.c) On limited access roadways, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane to establish the advance and transition signing. The Arrow Board mounted on the TMA shall be in the arrow mode when taking the lane. The sign truck and workers shall be at sufficient distance ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Portable Changeable Message Signs, signs, Arrow Boards, and cones/drums are installed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when traveling in the closed lane.
- 6.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each additional work area as needed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when in the closed lane.
- 6.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to Section 18.06. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) shall be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.
- 6.f) TMAs will be paid for in accordance with how the unit is used. If it is used as a TMA and is in the proper location as specified, then it will be paid for at the specified hourly rate for Truck-Mounted or Trailer-Mounted Impact Attenuator. When the TMA is used

as an Arrow Board, it will be paid for at the daily rate for Arrow Board. If a TMA is used to install and remove a pattern and is also used as an Arrow Board in the same day, then the unit will be paid for as a Truck-Mounted or Trailer-Mounted Impact Attenuator for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove). If the TMA is also used as an Arrow Board during the same day, then the unit will only be paid for at the daily rate as an Arrow Board.

## **7. Use of Traffic Drums and Traffic Cones**

- 7.a) On limited-access highways, ramps, and turning roadways:
  - i. Traffic drums shall be used for taper channelization.
  - ii. Traffic drums shall be used to delineate raised catch basins and other hazards.
  - iii. Traffic cones with a minimum height of 42 inches may be used in place of drums in the tangent section of a closed lane or shoulder.
  - iv. Traffic cones less than 42 inches in height shall not be used.
- 7.b) On all roadways:
  - i. Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.
  - ii. Traffic cones shall not be left unattended.
  - iii. Traffic cones with a minimum height of 42 inches shall be used when the posted speed limit is 45 MPH or above.
- 7.c) Typical spacing of traffic drums and/or cones shown on the Construction Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

## **8. Use of Barricade Warning Lights**

- 8.a) Barricade Warning Lights shall be installed on channelizing devices when used in a merge taper. The Barricade Warning Lights shall flash in a sequential pattern when used in a merge taper. The successive flashing shall occur from the upstream end (beginning) of the merge taper to the downstream end (end) of the merge taper.
- 8.b) Type C Barricade Warning Lights may be used at night to delineate the edge of the travel way.
- 8.c) Type B Barricade Warning Lights shall be used on post-mounted advanced warning signs.

## **9. Use of Portable Changeable Message Signs (PCMS)**

- 9.a) On limited access roadways, one PCMS shall be used in advance of the traffic control pattern for all lane closures. Prior to installing the pattern, the PCMS shall be installed

and in operation, displaying the appropriate lane closure information. The PCMS shall be positioned  $\frac{1}{2}$  to 1 mile ahead of the start of the lane closure taper. If the distance to the nearest exit ramp is greater than the specified  $\frac{1}{2}$  to 1 mile distance, then an additional PCMS shall be positioned a sufficient distance ahead of the exit ramp (and before the previous on-ramp where practical) to alert motorists to the work and therefore offer them an opportunity to take the exit.

- 9.b) On non-limited access roadways, the use of PCMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to use the PCMS.
- 9.c) PCMS should be placed off the shoulder of the roadway and behind a traffic barrier, if practical. Where a traffic barrier is not available to shield the PCMS, it should be placed off the shoulder and outside of the clear zone. If a PCMS has to be placed on the shoulder of the roadway or within the clear zone, it should be placed on the paved shoulder with a minimum of five traffic drums placed in a taper in front of it to delineate its position. The taper shall meet minimum distance requirements for a shoulder closure. The PCMS shall be protected if it is used for a continuous duration of 36 hours or more.
- 9.d) The PCMS shall be removed from the clear zone and have the display screen cleared and turned 90 degrees away from the roadway when the PCMS is no longer required.
- 9.e) The PCMS should not be used within 1,000 feet of an existing PCMS or Variable Message Sign (VMS).
- 9.f) A PCMS message shall:
  - i. consist of no more than two phases;
  - ii. contain no more than three lines of text per phase;
  - iii. have no more than eight characters per line, including spaces.
- 9.g) The PCMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs. The PCMS should not be used for generic messages (ex.: Road Work Ahead, Bump Ahead, Gravel Road, etc.) or for messages that need to be displayed for long periods of time, such as during stage construction. These types of messages should be displayed with construction signs. Special signs shall be coordinated with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.
- 9.h) Typical messages that are allowed on the PCMS are shown below. Approval must be received from the Office of Construction for any message(s) different than the typical messages shown in Figure 1.
- 9.i) All messages shall comply with the information provided in Tables 2 and 3.

|   | <u>Phase 1</u>             | <u>Phase 2</u>  | <u>Message No.</u> | <u>Phase 1</u>              | <u>Phase 2</u>   |
|---|----------------------------|-----------------|--------------------|-----------------------------|------------------|
| 1 | LEFT<br>LANE<br>CLOSED     | MERGE<br>RIGHT  | 9                  | LANES<br>CLOSED<br>AHEAD    | REDUCE<br>SPEED  |
| 2 | 2 LEFT<br>LANES<br>CLOSED  | MERGE<br>RIGHT  | 10                 | LANES<br>CLOSED<br>AHEAD    | USE<br>CAUTION   |
| 3 | LEFT<br>LANE<br>CLOSED     | REDUCE<br>SPEED | 11                 | EXIT XX<br>CLOSED           | USE<br>EXIT YY   |
| 4 | 2 LEFT<br>LANES<br>CLOSED  | REDUCE<br>SPEED | 12                 | EXIT XX<br>CLOSED<br>USE YY | FOLLOW<br>DETOUR |
| 5 | RIGHT<br>LANE<br>CLOSED    | MERGE<br>LEFT   | 13                 | 2 LANES<br>SHIFT<br>AHEAD   | USE<br>CAUTION   |
| 6 | 2 RIGHT<br>LANES<br>CLOSED | MERGE<br>LEFT   | 14                 | 3 LANES<br>SHIFT<br>AHEAD   | USE<br>CAUTION   |
| 7 | RIGHT<br>LANE<br>CLOSED    | REDUCE<br>SPEED |                    |                             |                  |
| 8 | 2 RIGHT<br>LANES<br>CLOSED | REDUCE<br>SPEED |                    |                             |                  |

**Figure 1: Typical PCMS Messages**

**Table 2: Acceptable Abbreviations**

| <b>Word Message</b>                | <b>Standard Abbreviation</b> | <b>Word Message</b>   | <b>Standard Abbreviation</b>                        |
|------------------------------------|------------------------------|---|---|
| Access                             | ACCS                         | Minimum   | MIN   |
| Afternoon / Evening                | PM                           | Minor   | MNR   |
| Ahead                              | AHD                          | Minute(s)   | MIN   |
| Alternate                          | ALT                          | Monday  | MON   |
| Avenue                             | AVE, AV                      | Morning / Late Night  | AM  |
| Bicycle                            | BIKE                         | Mount   | MT  |
| Blocked                            | BLKD                         | Mountain  | MTN   |
| Boulevard                          | BLVD                         | National  | NATL  |
| Bridge                             | BR                           | Normal  | NORM  |
| CB Radio                           | CB                           | North   | N   |
| Center                             | CTR                          | Northbound  | NBND  |
| Center                             | CNTR                         | Oversized   | OVRSZ   |
| Chemical                           | CHEM                         | Parking   | PKING   |
| Circle                             | CIR                          | Parkway   | PKWY  |
| Compressed Natural Gas             | CNG                          | Pavement  | PVMT  |
| Condition                          | COND                         | Pedestrian  | PED   |
| Congested                          | CONG                         | Place   | PL  |
| Construction                       | CONST                        | Pounds  | LBS   |
| Court                              | CT                           | Prepare   | PREP  |
| Crossing                           | XING                         | Quality   | QLTY  |
| Crossing (other than highway-rail) | XING                         | Right   | RT  |
| Downtown                           | DWNTN                        | Road  | RD  |
| Drive                              | DR                           | Roadwork  | RDWK  |
| East                               | E                            | Route   | RT, RTE   |
| Eastbound                          | EBND                         | Saint   | ST  |
| Electric Vehicle                   | EV                           | Saturday  | SAT   |
| Emergency                          | EMER                         | Service   | SERV  |
| Entrance, Enter                    | ENT                          | Shoulder  | SHLDR   |
| Exit                               | EX                           | Slippery  | SLIP  |
| Express                            | EXP                          | South   | S   |
| Expressway                         | EXPWY                        | Southbound  | SBND  |
| Feet                               | FT                           | Speed   | SPD   |
| Freeway                            | FRWY, FWY                    | State, county, or other non-US or non-Interstate numbered route | [Route Abbreviation determined by highway agency]** |
| Friday                             | FRI                          | Street  | ST  |
| Frontage                           | FRNTG                        | Sunday  | SUN   |
| Hazardous                          | HAZ                          | Telephone   | PHONE   |
| Hazardous Material                 | HAZMAT                       | Temporary   | TEMP  |
| High Occupancy Vehicle             | HOV                          | Terrace   | TER   |
| Highway                            | HWY                          | Thruway   | THWY  |
| Highway-Rail Grade Crossing        | RR XING                      | Thursday  | THURS   |

|                         |         |                      |           |
|-------------------------|---------|----------------------|-----------|
| Hospital                | HOSP    | Tons of Weight       | T         |
| Hour(s)                 | HR, HRS | Traffic              | TRAF      |
| Information             | INFO    | Trail                | TR        |
| International           | INTL    | Travelers            | TRVLRS    |
| Interstate              | I-      | Tuesday              | TUES      |
| Junction / Intersection | JCT     | Turnpike             | TPK       |
| Lane                    | LN      | Two-Way Intersection | 2-WAY     |
| Left                    | LFT     | Two-Wheeled Vehicles | CYCLES    |
| Liquid Propane Gas      | LP-GAS  | Upper                | UPR       |
| Local                   | LOC     | US Numbered Route    | US        |
| Lower                   | LWR     | Vehicle(s)           | VEH, VEHS |
| Maintenance             | MAINT   | Warning              | WARN      |
| Major                   | MAJ     | Wednesday            | WED       |
| Maximum                 | MAX     | West                 | W         |
| Mile(s)                 | MI      | Westbound            | WBND      |
| Miles Per Hour          | MPH     |                      |           |

\*\* A space and no dash shall be placed between the abbreviation and the number of the route.

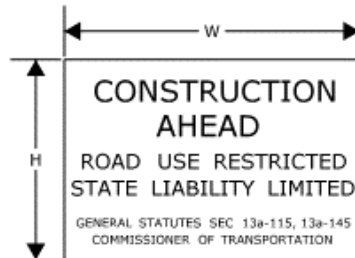
**Table 3: Unacceptable Abbreviations**

| <b>Unacceptable Abbreviation</b> | <b>Intended Word</b> | <b>Common Misinterpretation</b> |
|----------------------------------|----------------------|---------------------------------|
| ACC                              | Accident             | Access (Road)                   |
| CLRS                             | Clears               | Colors                          |
| DLY                              | Delay                | Daily                           |
| FDR                              | Feeder               | Federal                         |
| L                                | Left                 | Lane (Merge)                    |
| LT                               | Light (Traffic)      | Left                            |
| PARK                             | Parking              | Park                            |
| POLL                             | Pollution (Index)    | Poll                            |
| RED                              | Reduce               | Red                             |
| STAD                             | Stadium              | Standard                        |
| WRNG                             | Warning              | Wrong                           |

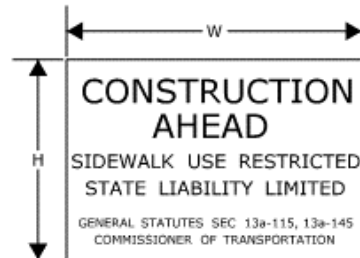
## **10. Use of State Police Officers**

- 10.a) State Police may be used only on limited access highways and secondary roadways that are under their primary jurisdiction. A minimum of one Officer may be used per critical sign pattern; however, a State Police presence is not required. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Left lane closures may also be implemented without State Police presence in areas with only moderate traffic and wide, unobstructed medians. It may be desirable to have a State Police presence, when available, under specific situations, such as nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur; however, they are not required.
- 10.b) If a State Police presence is provided, once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location in advance of the pattern to provide advance warning to the motorist. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall reposition so that they are located prior to the backup. The State Police Officer should not be located immediately behind or within the roll ahead area of any TMA or within the work zone buffer area. The State Police Officer shall not be positioned in such a way that the State Police Officer obstructs any construction warning signs or PCMS from view of the motorist.
- 10.c) Other functions of the State Police Officer(s) may include:
  - i. Assisting construction vehicles entering and exiting the work area.
  - ii. Enforcement of motor vehicle laws within the work area, if specifically requested by the Engineer.
- 10.d) State Police Officers assigned to a work site shall take direction from the Engineer.

## SERIES 16 SIGNS



|      |         | W         | H |
|------|---------|-----------|---|
| 16-E | 80-1605 | 84" x 60" |   |
| 16-H | 80-1608 | 60" x 42" |   |
| 16-M | 80-1613 | 30" x 24" |   |



|      |         | W         | H |
|------|---------|-----------|---|
| 16-S | 80-1619 | 48" x 30" |   |

SIGN 16-S SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS. SERIES 16 SIGNS SHOULD BE LOCATED TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHOULD BE INSTALLED ON MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHOULD BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMP PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL FREEWAYS AND EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

CONSTRUCTION TRAFFIC CONTROL PLAN  
**SERIES 16 SIGNS**

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

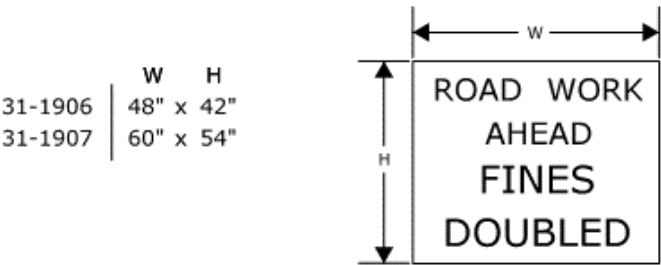
*Tracy L. Fogarty*  
PRINCIPAL ENGINEER

Tracy L. Fogarty, P.E.  
2019.10.09 16:30:32-0400

# REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

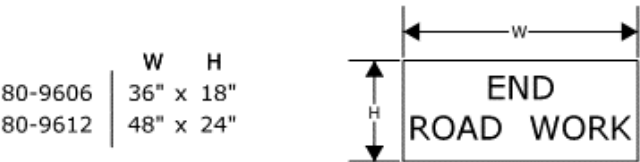
THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY AND MUNICIPAL ROAD IN CONNECTICUT WHERE THERE ARE WORKERS PRESENT ON THE HIGHWAY.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.



# "END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN SHALL BE THE "END ROAD WORK" SIGN.



CONSTRUCTION TRAFFIC CONTROL PLAN  
ROAD WORK AHEAD  
SIGNS

SCALE: NONE

## NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.
2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED IN ADVANCE TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.
3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.
4. TRAFFIC CONES AND PORTABLE CONSTRUCTION SIGNS SHALL NOT BE LEFT UNATTENDED.
5. ALL CONFLICTING SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.
6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 48 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.
7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT  $\leq$  40 MPH).
8. IF THIS PLAN IS TO REMAIN IN OPERATION FROM SUNSET TO SUNRISE, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
9. A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF MILE TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
10. SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

| POSTED SPEED LIMIT<br>(MILES PER HOUR) | MINIMUM TAPER LENGTH FOR<br>A SINGLE LANE CLOSURE |
|--|---|
| 30 OR LESS                             | 180'  |
| 35                                     | 245'  |
| 40                                     | 320'  |
| 45                                     | 540'  |
| 50                                     | 600'  |
| 55                                     | 660'  |
| 65                                     | 780'  |

CONSTRUCTION TRAFFIC CONTROL PLAN

### NOTES

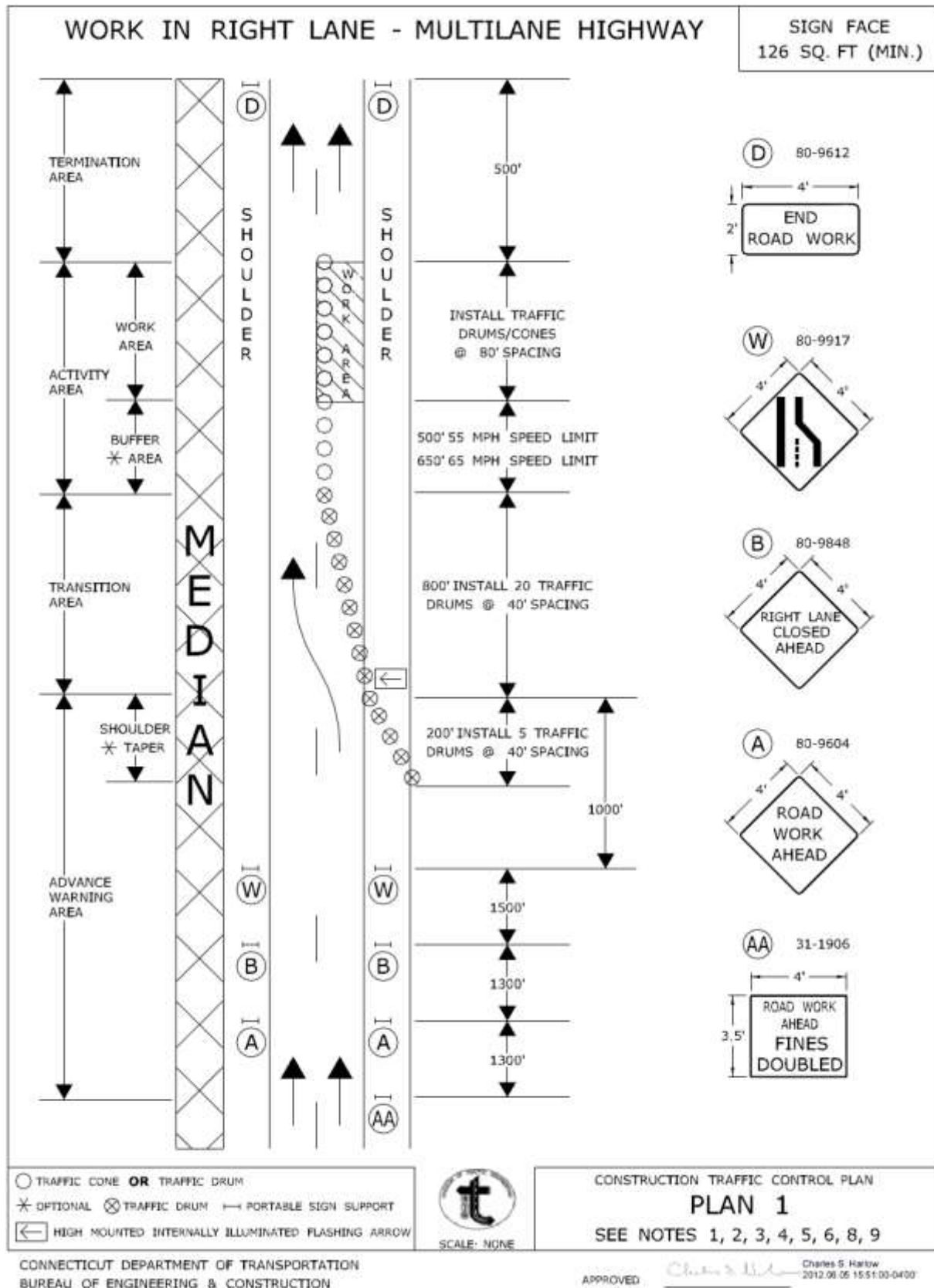
SCALE: NONE

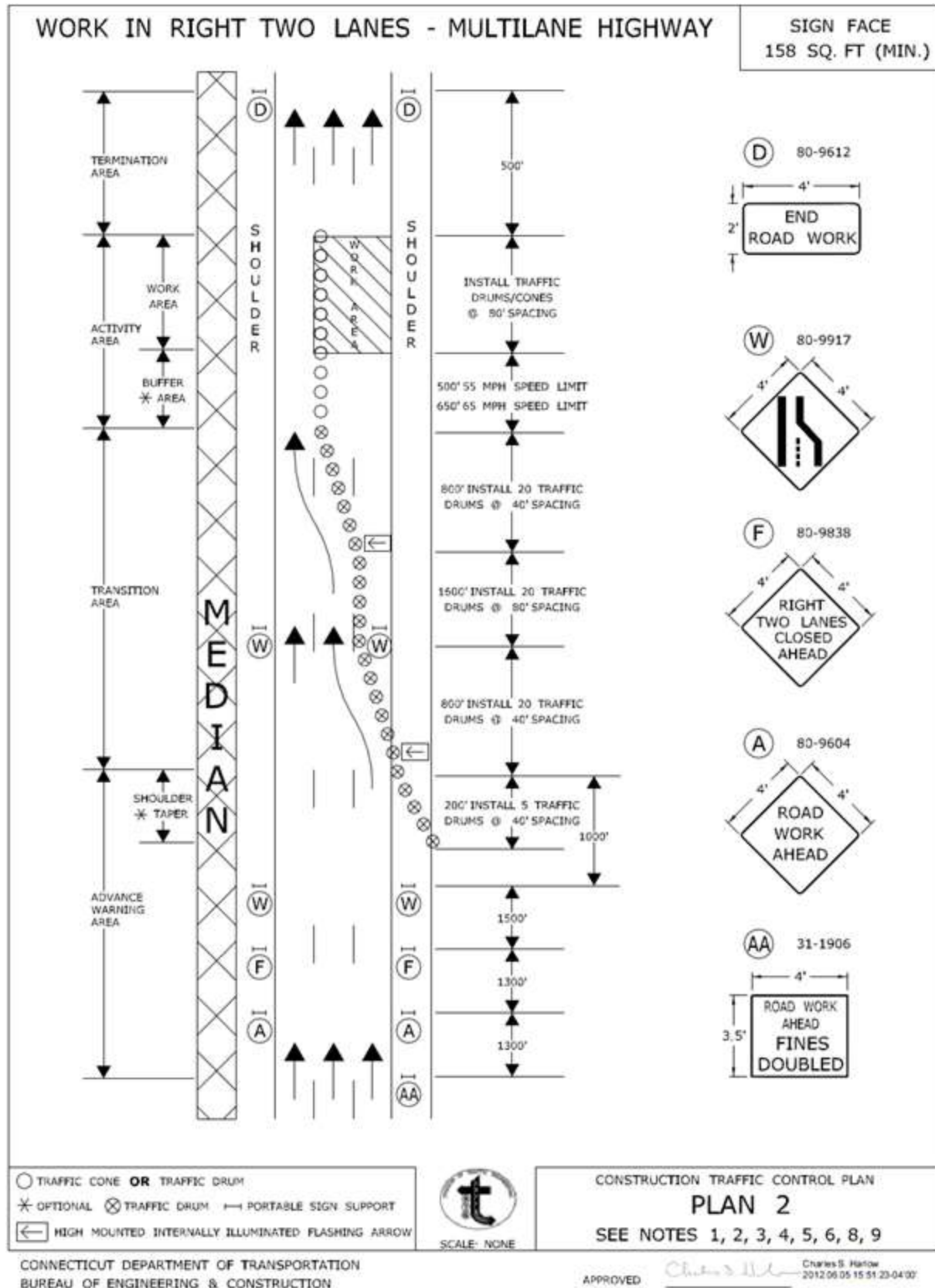
CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

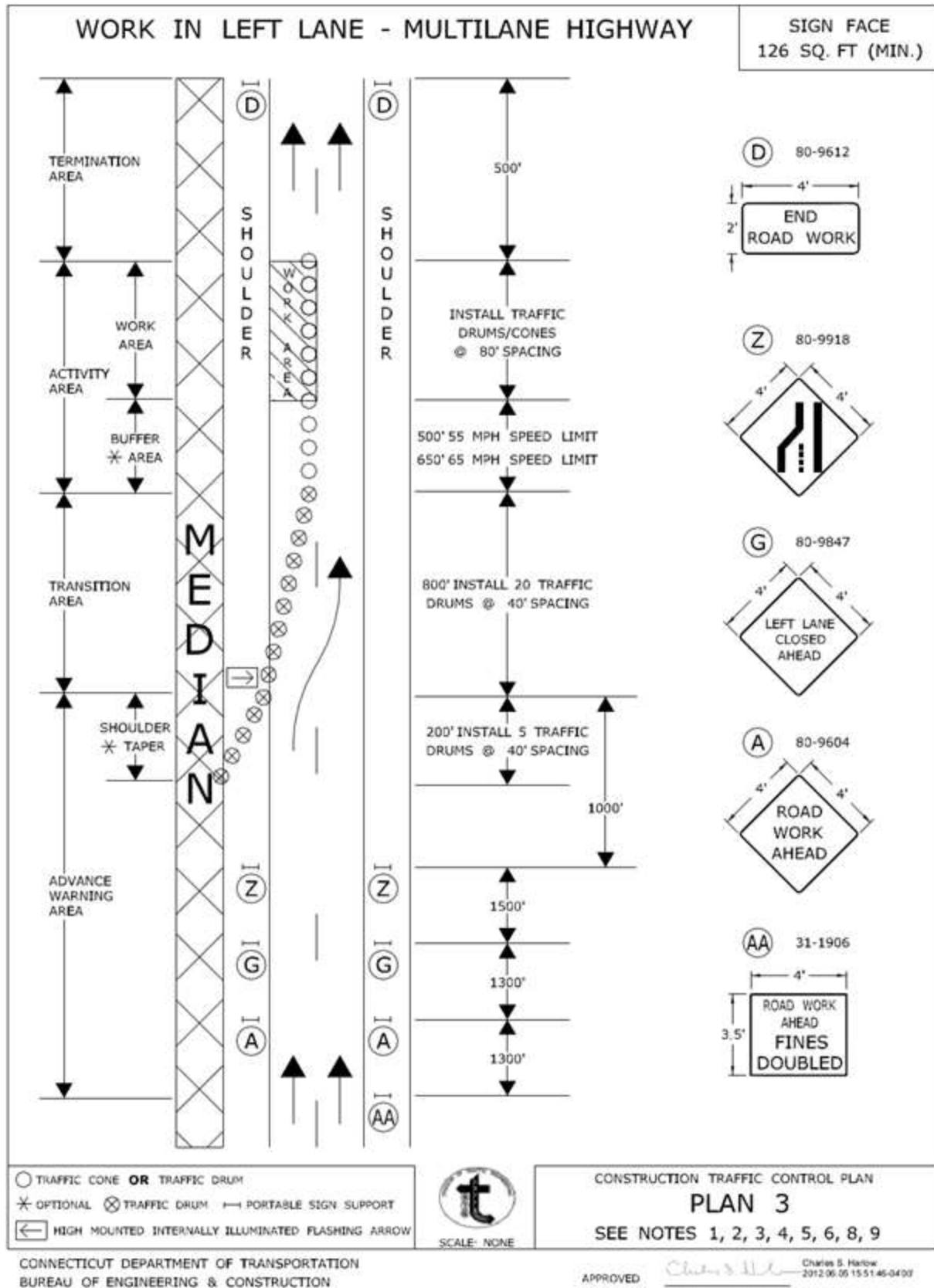
APPROVED

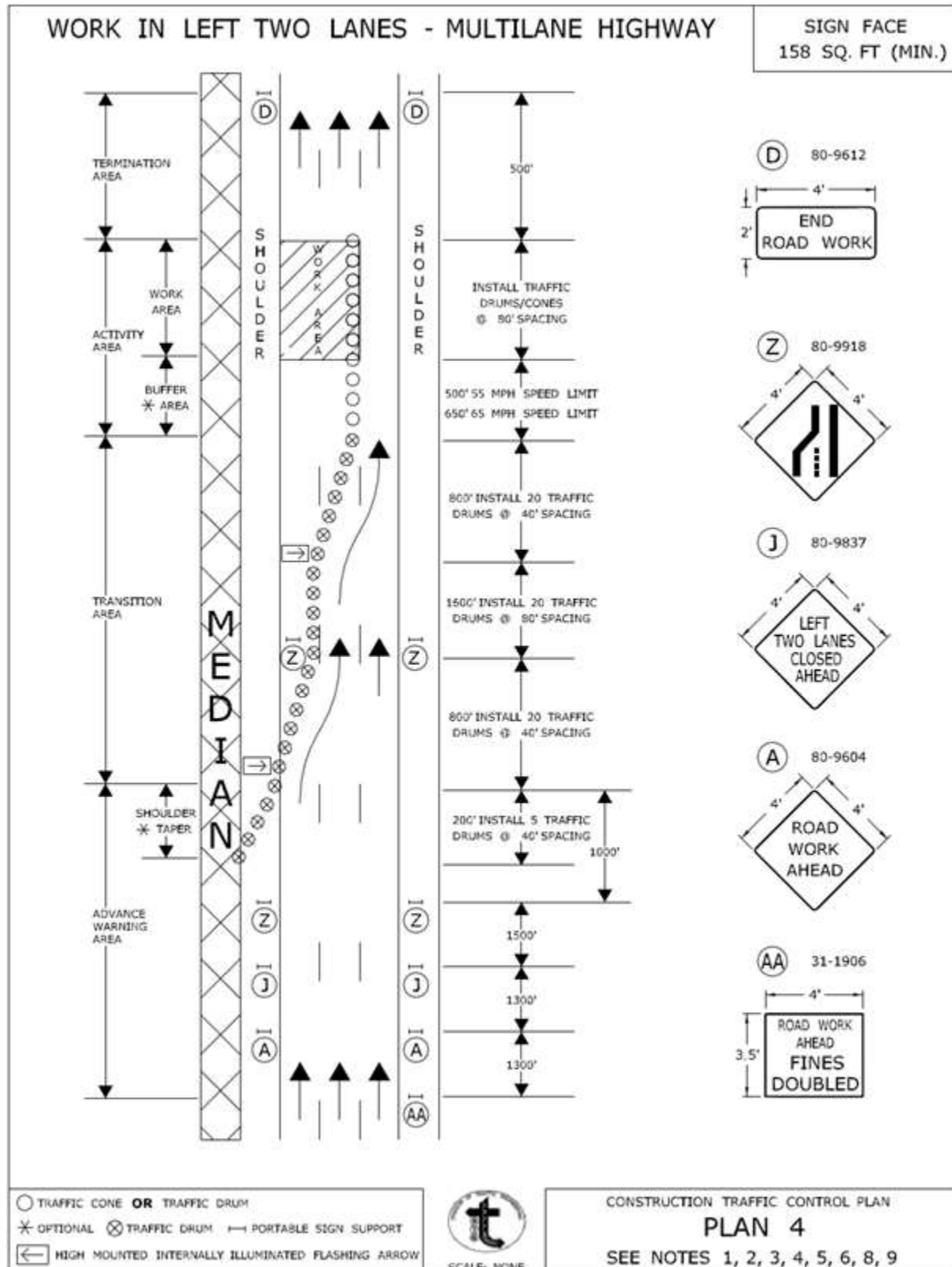
*Tracy L. Fogarty*  
PRINCIPAL ENGINEER

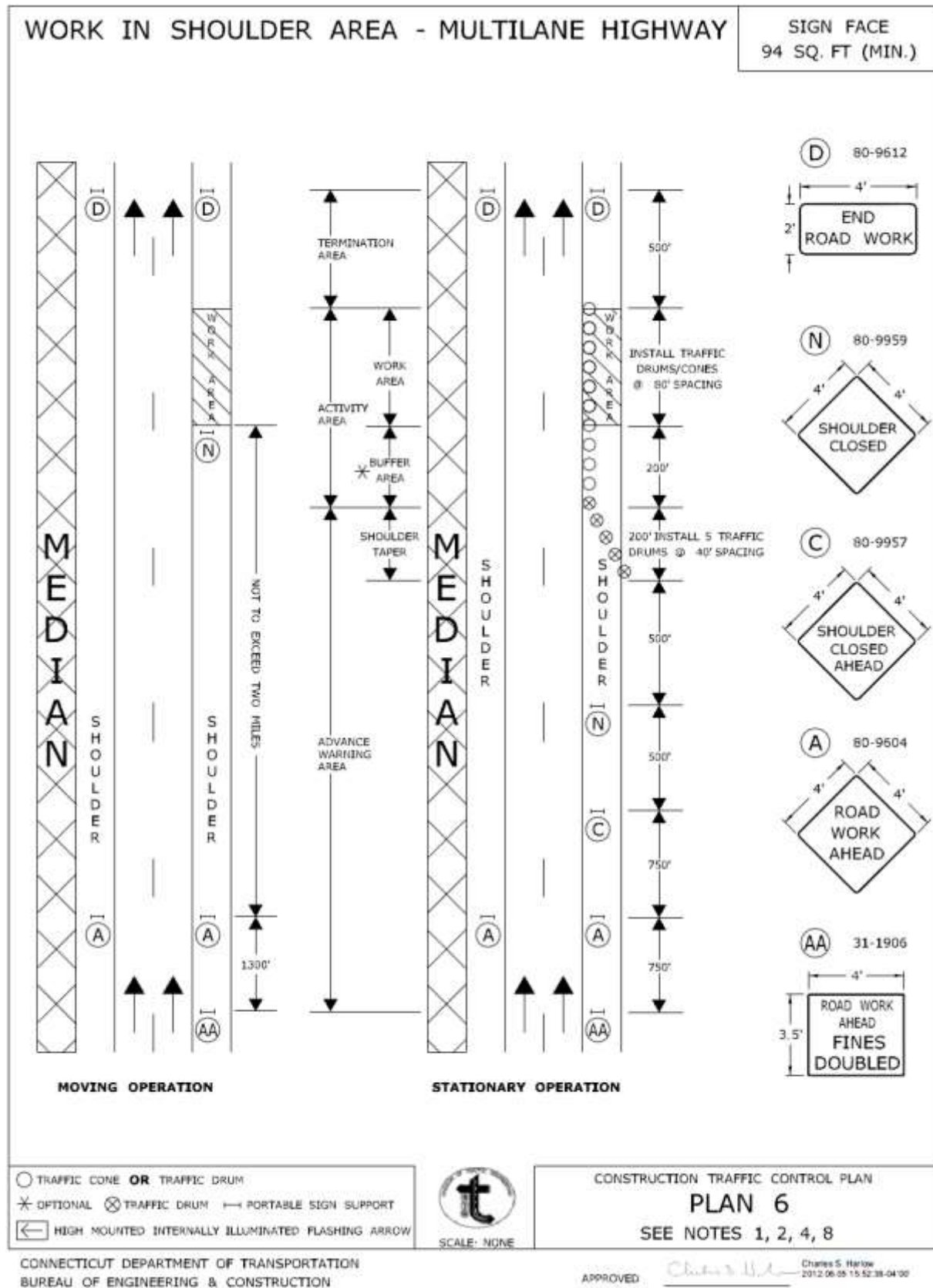
Tracy L. Fogarty, P.E.  
2019.05.13 06:47:47-0400

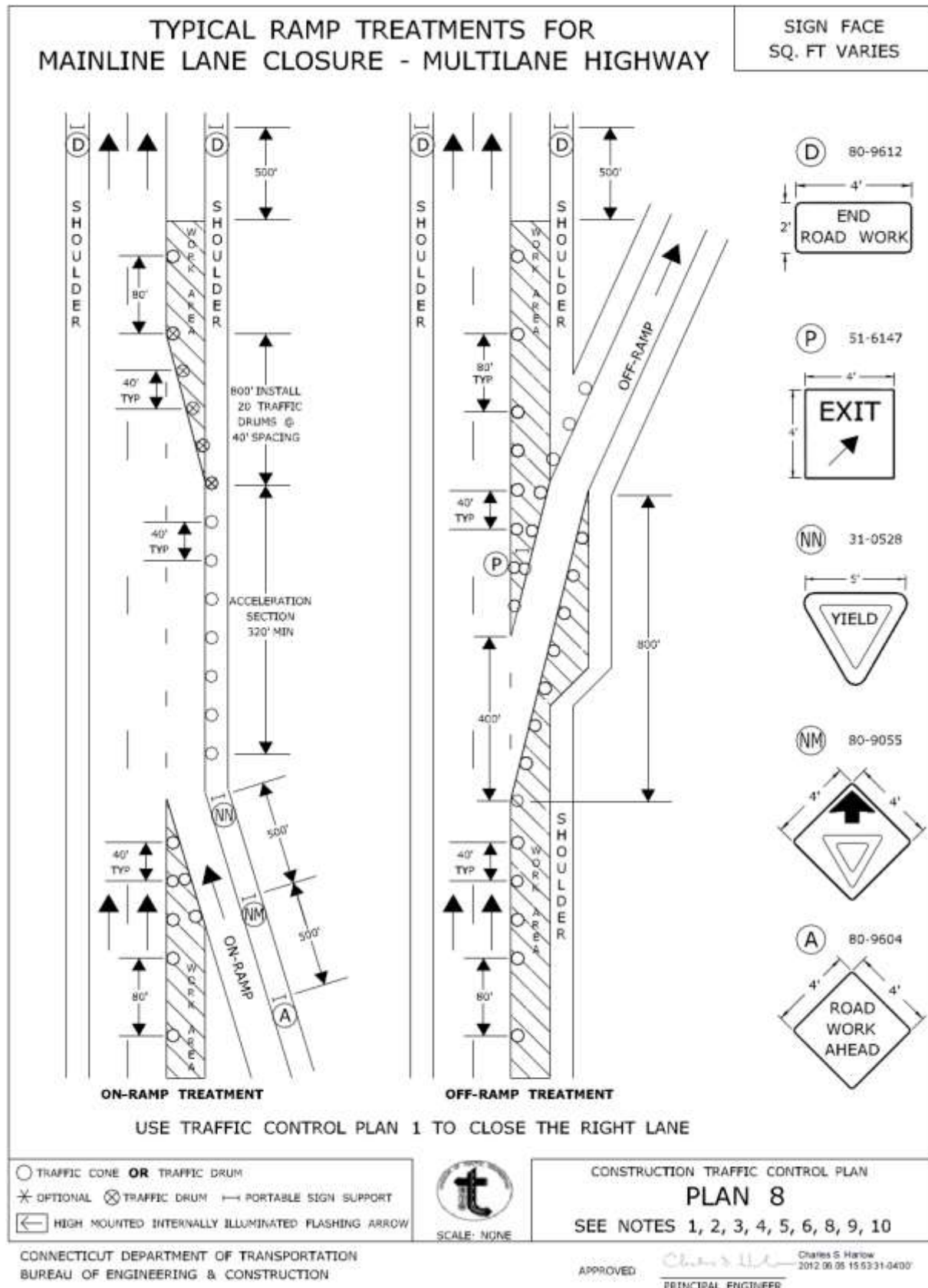


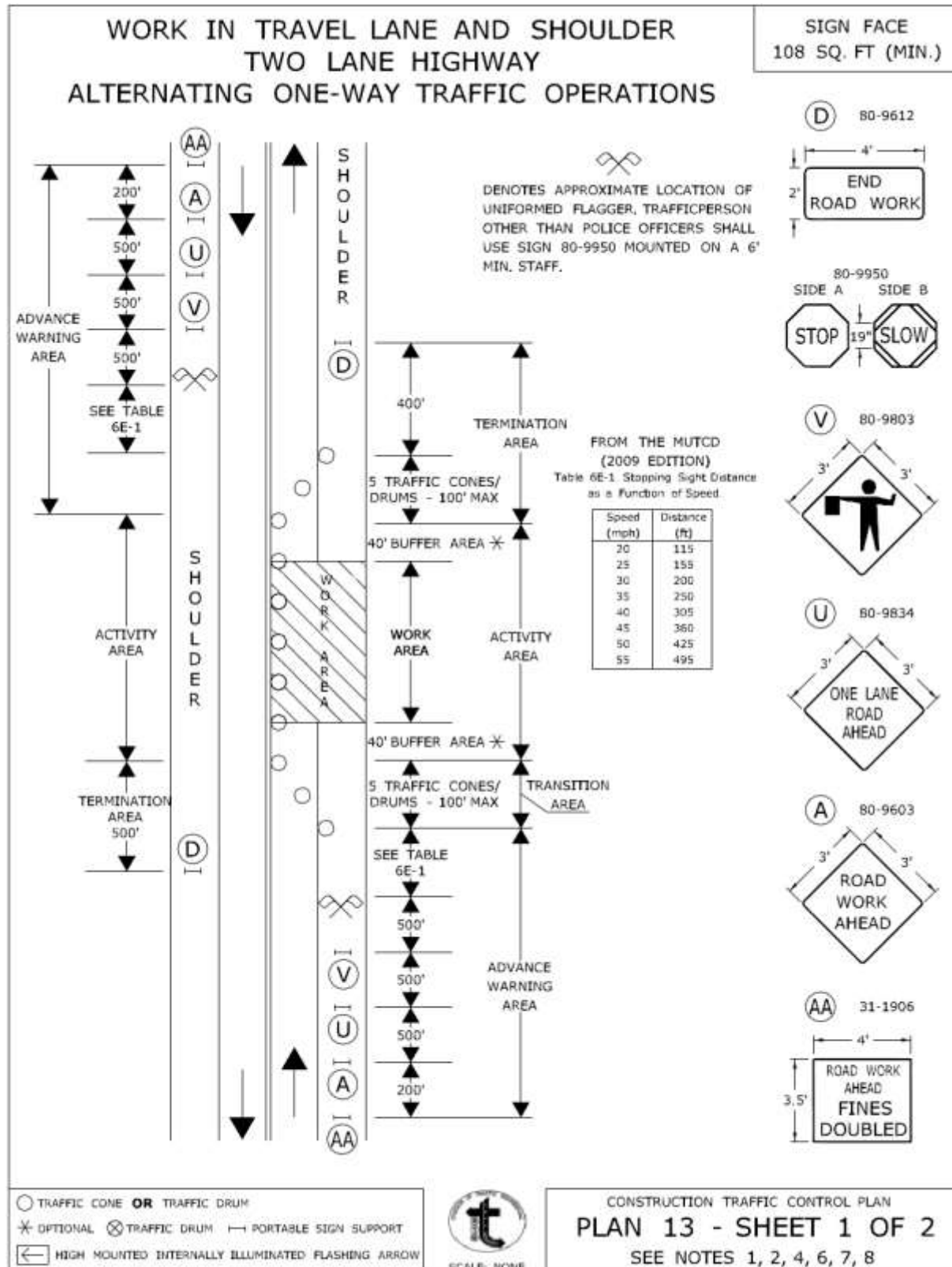












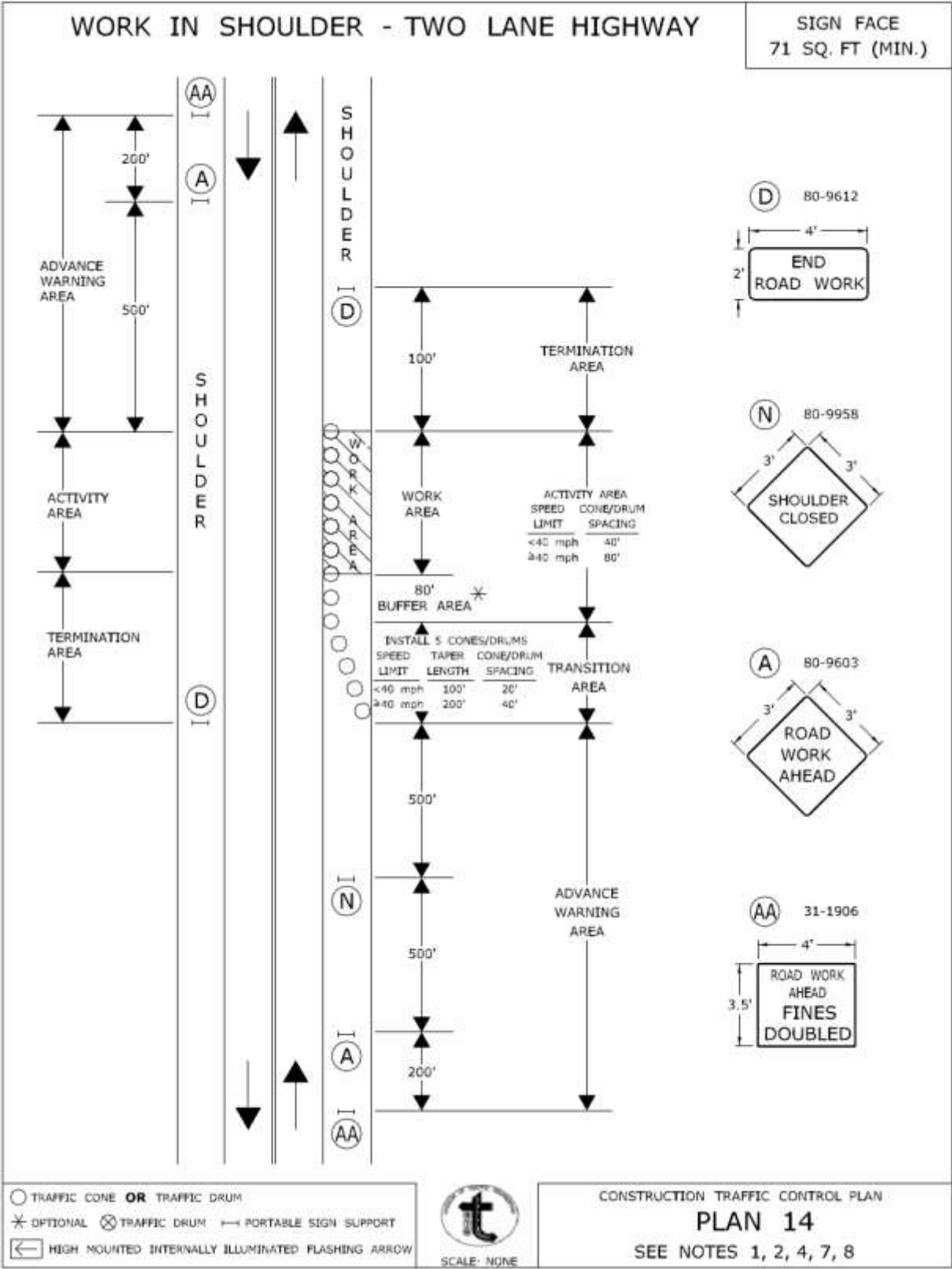


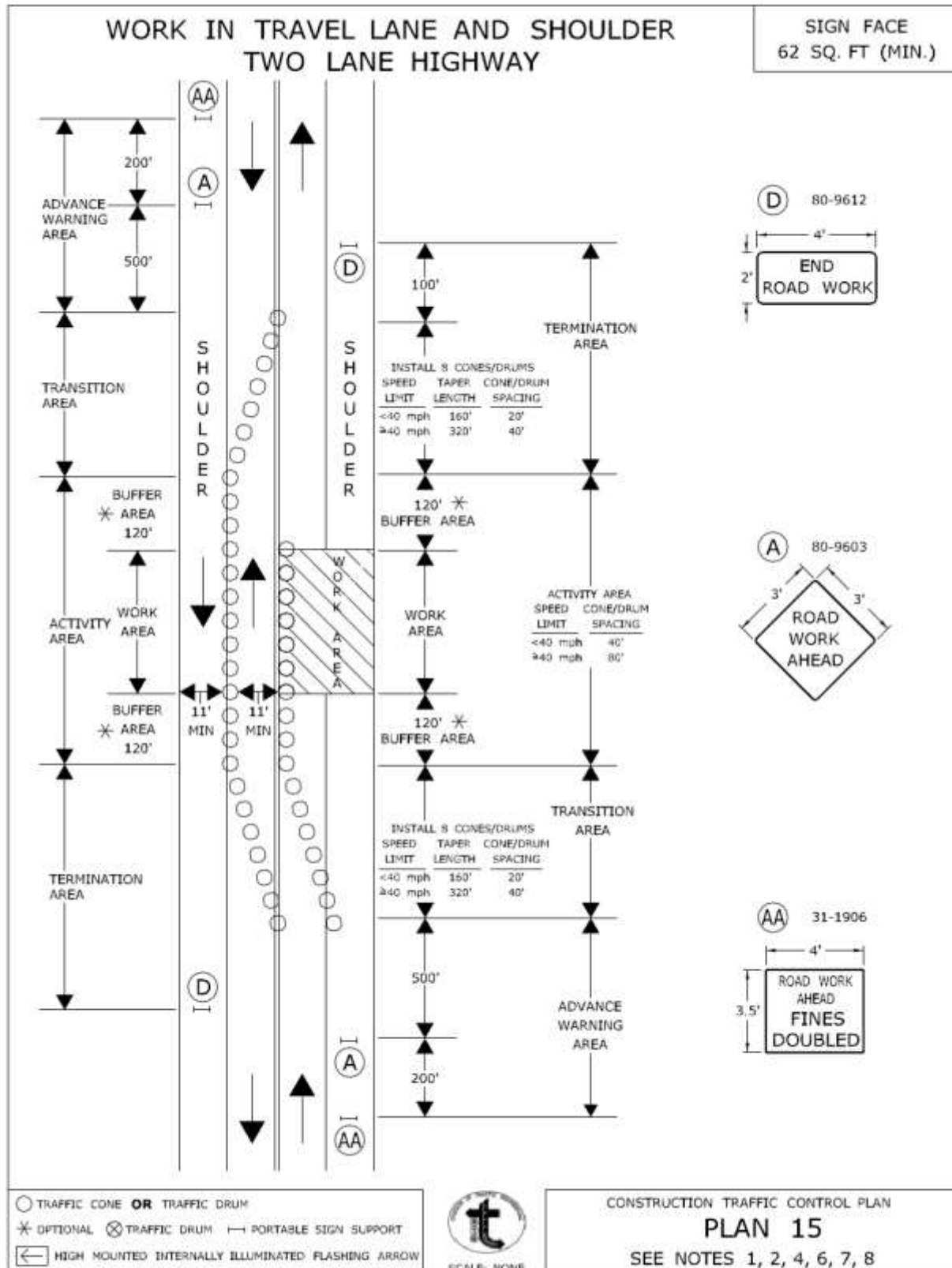


|  |  |   |
|--|--|---|
| <h2 style="margin: 0;">WORK IN TRAVEL LANE AND SHOULDER<br/>TWO LANE HIGHWAY<br/>ALTERNATING ONE-WAY TRAFFIC OPERATIONS</h2> <p style="margin-top: 20px;"><u>HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS</u></p> <p>THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.</p> | <p><b>SIGN FACE</b><br/>108 SQ. FT (MIN.)</p>  |   |
| <p><b>A. TO STOP TRAFFIC</b></p> <p>TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.</p>   |                |   |
| <p><b>B. TO DIRECT TRAFFIC TO PROCEED</b></p> <p>TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.</p>   |               |   |
| <p><b>C. TO ALERT OR SLOW TRAFFIC</b></p> <p>TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.</p>  |               |   |
| <p>○ TRAFFIC CONE <b>OR</b> TRAFFIC DRUM</p> <p>* OPTIONAL    ⊗ TRAFFIC DRUM    ⇌ PORTABLE SIGN SUPPORT</p> <p>◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW</p>  | <br>SCALE: NONE | <p>CONSTRUCTION TRAFFIC CONTROL PLAN</p> <h3 style="margin: 0;">PLAN 13 - SHEET 2 OF 2</h3> <p>SEE NOTES 1, 2, 4, 6, 7, 8</p> |

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED:  Charles S. Harlow  
2012.06.08 15:55:45-04'00"  
PRINCIPAL ENGINEER

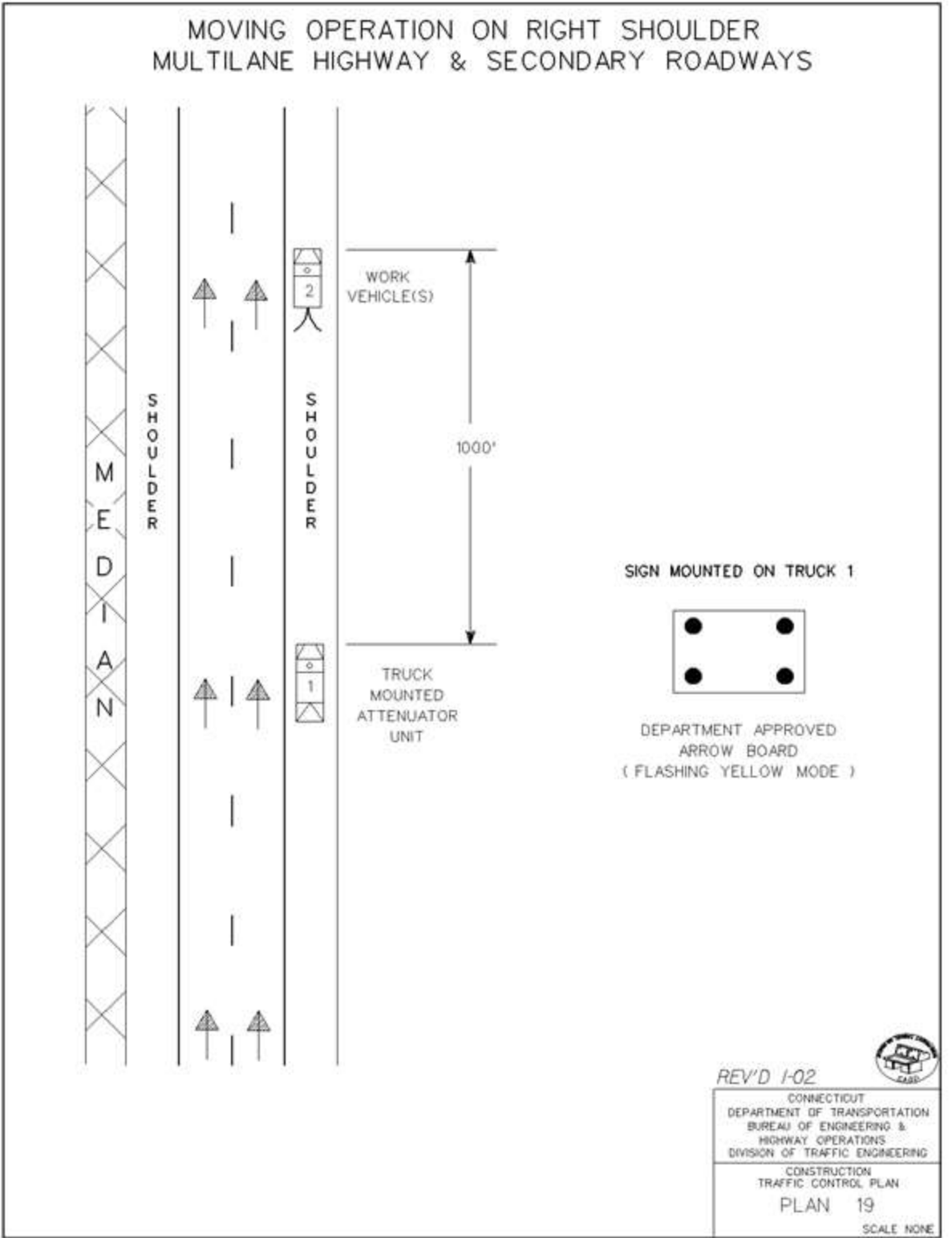


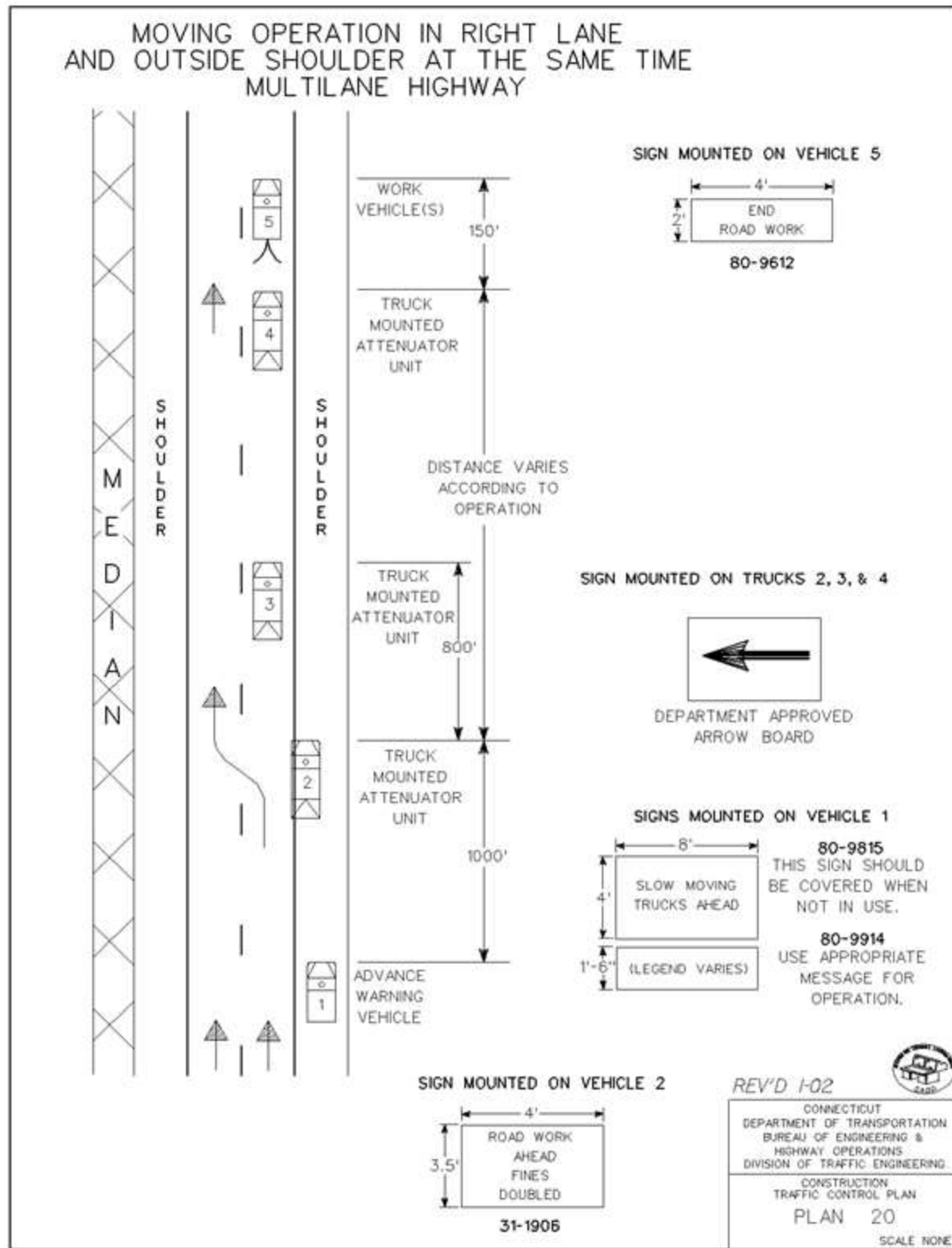


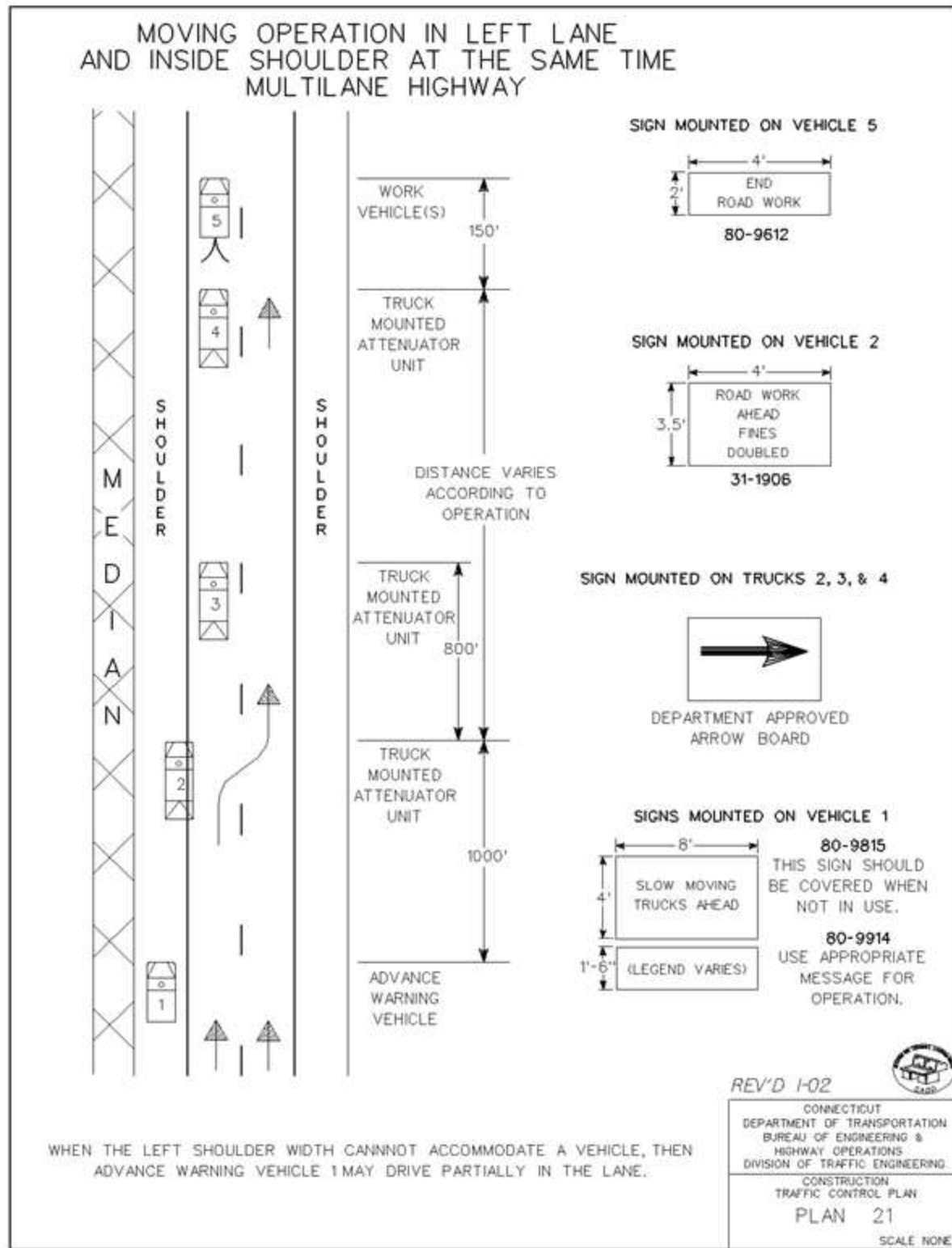
CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

*Charles S. Hallow*  
2012.06.05 15:56:29-04'00'  
PRINCIPAL ENGINEER







**Article 9.71.05 – Basis of Payment** *is supplemented by the following:*

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item “Maintenance and Protection of Traffic”.

Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing, and removing the material for the 4H:1V traversable slope shall be paid for under the item “Maintenance and Protection of Traffic”.

| <b><u>Pay Item</u></b>                | <b><u>Pay Unit</u></b> |
|---------------------------------------|------------------------|
| Maintenance and Protection of Traffic | L.S.                   |

## **ITEM #0974105A – CONCRETE HAUNCH REMOVAL**

### **Description:**

Work under this item shall consist of removing a portion of the existing concrete haunch from the underside of the bridge deck slab along the edge of a beam in locations directly over river, railroad, underpass roadways, shoulders and walks, as shown on the Plans, and as directed by the Engineer, in accordance with these specifications.

### **Materials:**

The material to clean and coat the reinforcing bars shall that as included in special provision “Clean and Coat Exposed Reinforcing Steel”.

### **Construction Methods:**

The Contractor shall remove a portion of the concrete beam haunch located directly over underpass roadways and sidewalks in accordance with details and limits shown on the plans and as directed by the Engineer.

Concrete shall be removed by saw-cut and pneumatic hammer methods specified herein which do not damage the sound concrete in the bottom of the bridge deck, the adjacent steel beam, and portion of the beam haunch to remain.

A 3-inch deep saw-cut shall be made into the haunch, as shown on the plans, using a concrete saw guided on a fixed track system for exact control of saw cut alignment and depth of cut, except at locations above bridge beam diaphragms or other obstructions having insufficient vertical clearance for saw-cutting equipment. Following the completion of the saw-cut, the portion of the haunch to be removed shall be broken away by percussive methods.

At haunch removal locations over bridge beam diaphragms or other obstructions having insufficient clearance for track guided concrete saw equipment, pneumatic hammers may be used to remove a portion of the beam haunch as shown on the plans. The maximum weight of pneumatic hammers used in the removal shall be 15 pounds.

The Engineer shall examine the underside of the bridge deck for popouts caused by the removal of haunches.

If the popouts extend beyond the bottom layer of reinforcing steel, the popouts shall be repaired as ordered by the Engineer. The exposed reinforcing shall be cleaned and coated, paid for and as described in “Clean and Coat Exposed Reinforcing Steel”.

Contractor shall take adequate measures to prevent concrete chips, concrete sawing slurry, tools and materials from accumulating on the bridge structure and dropping onto the pedestrian walkway or travel lanes or river below.

**Method of Measurement:**

This work will be measured for payment by the number of linear feet of concrete beam haunch removed in accordance with the plans and accepted by the Engineer.

**Basis of Payment:**

This work will be paid for at the contract unit price per linear foot for "Concrete Haunch Removal", which price shall include the removal of a portion of the concrete haunch along each edge of a beam, disposal of removed concrete, and all materials, equipment, tools and labor incidental thereto. The cost of cleaning and coating any exposed reinforcing steel caused by pop-outs shall be covered under the item "Clean and Coat Exposed Reinforcing Steel".

**Pay Item**

Concrete Haunch Removal

**Pay Unit**

LF

## **ITEM #1014901A – REMOVE CABLE**

**DESCRIPTION:** This item shall consist of removing highway lighting circuit conductors from existing conduit and light standard foundations at the location as indicated on the plans, or as ordered and in accordance with this specification. The removed cable shall remain the property of the Contractor.

**CONSTRUCTION METHOD:** The Contractor shall remove all single conductors from conduit or light standard foundations at the location as indicated on the plans.

For locations where the conduit will not be re-used: The existing conductors shall be removed, and the conduit left in an “as is” condition.

The removed cable shall be neatly coiled, tied and disposed of by the Contractor.

**METHOD OF MEASUREMENT:** This work shall be measured for payment by the actual number in linear feet of conduit from which the cable is removed.

**BASIS OF PAYMENT:** This work will be paid for at the contract unit price per linear foot for “Remove Cable” which price shall include the removal of single conductors, the proper disposal of the removed conductors, and all equipment, labor and work incidental thereto.

### **Pay Item**

Remove Cable

### **Pay Unit**

L.F.

**ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)**

*Section 12.08 is supplemented and amended as follows:*

**12.08.01—Description:**

*Add the following:*

This item shall also include field testing of metal sign base posts as directed by the Engineer.

**12.08.03—Construction Methods:**

*Delete the last sentence and add the following:*

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Engineer who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

**Field Testing of Metal Sign Posts:** When the sign installations are complete, the Contractor shall notify the Engineer the Project is ready for field testing. Based on the number of posts in the Project, the Engineer will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Engineer. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

**12.08.04—Method of Measurement:**

*Add the following:*

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

**12.08.05—Basis of Payment:**

*Replace the entire Article with the following:*

This work will be paid for at the Contract unit price per square foot for “Sign Face - Sheet Aluminum” of the type specified complete in place, adjusted by multiplying by the applicable Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware,

including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

**Pay Factor Scale:** Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

**Number of Posts to be Tested and Pay Factors (Based on Number of Defects)**

| Number of Posts in Project => | 51-100    | 101-250   | 251-1000  | >1000     |
|-------------------------------|-----------|-----------|-----------|-----------|
| Sample Size=>                 | 5 Posts   | 10 Posts  | 40 Posts  | 60 Posts  |
| 0 Defects                     | 1.0       | 1.0       | 1.025     | 1.025     |
| 1 Defect                      | 0.9       | 0.95      | 0.975     | 0.983     |
| 2 Defects                     | Rejection | 0.9       | 0.95      | 0.967     |
| 3 Defects                     | Rejection | Rejection | 0.925     | 0.95      |
| 4 Defects                     | Rejection | Rejection | 0.9       | 0.933     |
| 5 Defects                     | Rejection | Rejection | Rejection | 0.917     |
| 6 Defects                     | Rejection | Rejection | Rejection | 0.9       |
| 7 or more Defects             | Rejection | Rejection | Rejection | Rejection |

Note: Projects with 50 or fewer posts will not include field testing

## **ITEM #1806226A – PRE-WARNING VEHICLE**

**Description:** Work under this item shall include furnishing, deploying and maintaining a Truck-Mounted or Trailer-Mounted Impact Attenuator equipped with a changeable message sign (CMS) for use as a Pre-Warning Vehicle (PWV) in a rolling road block operation on limited access highways. The message on the sign shall warn motorists of slow or stopped traffic conditions.

**Materials:** The Truck-Mounted or Trailer-Mounted Impact Attenuator shall meet the requirements of Article 18.06.02, except replace all instances of “flashing arrow,” “arrow sign,” and “arrow” with “CMS”.

The CMS shall meet the requirements of Article 11.31.02, with the following amendments:

**1. Physical Characteristics of the CMS**

- a) Mounting – The CMS shall be truck mounted only
- b) Sign Display Dimensions – Width of 6 feet, height of 4 feet

**2. Visual Characteristics of the CMS Display**

- a) Sign Type – CMS shall have a LED display only
- b) Color – CMS shall have black background with orange, yellow, or amber legend
- c) Characters – Letter height shall be 13 inches; Single stroke
- d) Visibility – CMS brightness must provide for visibility at 1/2 mile
- e) Message – The message shall read as follows, or shall be as directed by the Engineer:

Frame 1: SLOWED TRAFFIC AHEAD

Frame 2: BE PREPARED TO STOP

Or

Frame 1: STOPPED TRAFFIC AHEAD

Frame 2: BE PREPARED TO STOP

**Construction Methods:** The PWV shall be initially positioned in the right shoulder ½ mile prior to the rolling road block operation.

If a traffic queue reaches the PWV’s initial location, the Contractor shall slowly reverse the PWV along the shoulder to position itself prior to the new back of queue.

The Contractor shall meet the requirements of Article 18.06.03.

**Method of Measurement:** This work will be measured for payment by the actual number of hours that the Pre-Warning Vehicle is used in a rolling road block operation.

**Basis of Payment:** This work will be paid for at the Contract unit price per hour for “Pre-Warning Vehicle,” which shall include the furnishing and use of the pre-warning vehicle and a driver, attenuator reflector, flashing lights, changeable message sign, and all equipment, materials, tools, labor, disposal of damaged Truck-Mounted or Trailer-Mounted Impact Attenuator components and work incidental thereto.

**Pay Item**  
Pre-warning Vehicle

**Pay Unit**  
hr

**PERMITS AND/OR REQUIRED PROVISIONS:**

The following Permits and/or and Required Provisions follow this page are hereby made part of this Contract.

- **PERMITS AND/OR PERMIT APPLICATIONS**
  - **DEEP: Flood Management Certification** **Approved on April 6<sup>th</sup>, 2020**
- **Construction Contracts - Required Contract Provisions (FHWA Funded Contracts)**

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

m e m o r a n d u m

FLOOD MANAGEMENT GENERAL CERTIFICATION

**Project No.:** 151-333  
**Description:** Rehabilitation of Bridge Nos. 03176 & 03177  
Route 8 over Naugatuck River  
**Town:** Waterbury  
**Date:** December 05, 2019

**to:** Mr. Michael E. Masayda  
Trans. Principal Engineer  
Hydraulics and Drainage  
Bureau of Engineering and Highway Operations

**from:** Andrew J. Cardinali  
Transportation Supervising Engineer  
Bridge CLE Design  
Bureau of Engineering and Construction

Please review this request for Flood Management General Certification and indicate your concurrence below.

**Certification** (to be completed by designer)

*I have read the Flood Management General Certification and the descriptions for the approved DOT minor activities. This project qualifies for the Flood Management General Certification under:*

- ☐ Minor Safety Improvements and Streetscape Projects
- ☐ Roadway Repaving, Maintenance & Underground Utilities
- ☐ Minor Stormwater Drainage Improvements
- ☐ Removal of Sediment or Debris from a Floodplain
- ☐ Wetland Restoration Creation or Enhancement
- ☐ Scour Repairs at Structures; (*Must acquire DEEP Fisheries Concurrence to be eligible*)
- ☐ Guide Rail Installation
- ☐ Deck and Superstructure Replacements
- ☒ Minor Bridge Repairs and Access
- ☐ Fisheries Enhancements
- ☐ Surveying and Testing
- ☐ Bicycle / Pedestrian, Multi Use Trails and Enhancement Projects

*The following required documentation is attached in support of this certification:*

- Project description
- Location plan
- Description of Floodplain involvement and how project qualifies for general certification
- 8-1/2" by 11" excerpt copy of the FEMA Flood Insurance Rate Map (FIRM) and Floodway Boundary Map (if applicable)
- Design plans, (dated 8/29/19 & 9/17/19) with FEMA floodplain and floodway boundaries plotted, cross sections and profiles, as necessary, that clearly depict the floodplain involvement
- FEMA 100-year flood elevation plotted on elevation view (for structures)

**Print Name** Dionys Quezada

**Title** Project Engineer

**Signature**

**Date** 12/04/2019

**Concurrence** (to be completed by Hydraulics and Drainage)

Based on the documentation submitted, I hereby concur that the project qualifies for Flood Management General Certification.

*If there are any changes to the proposed activities within the floodplain or floodway, the project must be re-submitted for review and approval.*

**Signature**

**Date**

## **Flood Management General Certification**

State Project No. 151-333 in Waterbury

Bridge No. 03176: Route 8 Southbound over Naugatuck River

Bridge No. 03177: Route 8 Northbound over Naugatuck River

## **Existing Conditions**

Bridges Nos. 03176 and 03177 are multi-girder structures that carry Route 8 SB and NB respectfully over the Naugatuck River, Platts Mill Road and wastewater treatment plant (MDC) Access Road in the city of Waterbury. The bridges were originally built in 1966 with a length of 606 feet and an out to out width of 43 feet. The Average Daily Traffic is 27,350 vehicles with 8% truck traffic and the roadway has a functional classification of an Urban Principal Arterial – Other Expressway.

Both bridges are four span structures. Each span is 150 feet long, making the overall length of each bridge approximately 600 feet. The superstructure of each bridge consists of steel plate girders continuous over reinforced concrete piers. There are two spans are supported by a pin and hinge plate connection with one end of each structure supported on their respective abutments.

The purpose of this project is to address items identified in recent inspections. Based on field inspections, engineering analysis, and a review of ConnDOT's Bridge Inspection Reports, Bridges Nos. 03176 and 03177 were found to be structurally deficient. The inspections noted the following concerns with the current state both bridges:

- Deterioration at the deck joints
- Deteriorated existing fingers joints
- Laminated rusted rocker and fixed bearings
- Section loss at the girder bottom flanges
- Steel superstructure in poor condition
- Heavy rust and section loss at Hinge and Pin hanger
- Concrete spalls at pedestals and other locations

The Naugatuck River flows approximately east to west beneath the structures. Flood Insurance Rate Map (FIRM), Map No. 09009C0118H, Panel No. 118 of 635, effective December 17, 2010 indicates that the area of the crossing is located in special flood hazard Zone AE with an approximate base flood elevation of 228.9 feet (NAVD88). Mapped floodway has also been established along the Naugatuck River and at the project site.

## **Proposed Project**

The proposed work is intended to repair the existing bridge structures. The project proposes the following repairs to each structure:

- Replace strip seal deck joints and asphaltic plug deck joints
- Install a new spray applied waterproofing membrane and install a new overlay
- Patch the reinforced concrete deck, full and partial depth
- Replace the Bridge guardrail attachments at leading ends
- Remove finger joints at approach slab
- Remove wide concrete haunches over roadway
- Replace existing hinge pins and plates with stainless steel

- Repair and spot paint the steel end superstructure
- Jack, clean, and paint the existing rocker bearings
- Clean and paint the fixed bearings
- Patch the reinforced concrete substructure

Maintenance and protection of traffic on Route 8 will be accomplished utilizing temporary off-peak shoulder and lane closures to install a new overlay and spray applied waterproofing membrane, install new asphaltic plug deck joints, and patch the reinforced concrete deck. Temporary shoulder closures utilizing temporary precast concrete barrier will be utilized to provide a workspace to complete approach guide railing attachments. Temporary lane closures utilizing precast concrete barrier, which reduce traffic to one lane, will be utilized to provide a workspace for reconstruction of the deck ends with cut finger plates. This one-lane traffic pattern will occur on two consecutive weekends allowing each half of the bridge to be completed. During these weekends in which the reconstruction of the deck is performed, the one-lane traffic pattern will not extend more than 48 hours. Temporary lane closures will be required on Platts Mill Road and the private MDC service road below the bridge to gain access to the substructure elements. Construction is anticipated to commence in the spring of 2021 and conclude in the fall of 2021.

#### **Project Qualification for General Certification**

The majority of the project occurs at elevations above the floodplain elevation. The proposed repairs are included in Category 9: Minor Culvert and Bridge Repairs including proper containment. The proposed repairs to the bridges will be performed with proper containment to prevent debris from falling to any regulated areas located below the structures. In order to access the repairs to the underside of the bridge a snoopers and/or temporary work platforms mounted off the bridge with a minimum low chord of 265.08 will be utilized. The project will not modify the hydraulic capacity of the structures and the low chord will remain unchanged. Any temporary impact for construction, temporary facilities, and/or equipment will not be located within the 100-year floodplain elevation unless the system, materials, and/or equipment can be readily removed prior to any anticipated flood event. The project will meet the following conditions required of all FM-General approvals:

- Sedimentation and erosion controls included in the design are in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control* and current CTDOT standards. Proper erosion and sedimentation controls will be utilized in conjunction with Best Management Practices as outlined in Section 1.10 of The State of Connecticut Department of Transportation Standard Specifications for Roads, Bridge and Incidental Construction, Form 817, as revised by the latest supplementals.
- Temporary facilities or equipment requiring work in or placement in the floodplain are to be designed in accordance with the guidelines outlined in the *CTDOT Drainage Manual* for Temporary Hydraulic Structures. Any temporary facilities or equipment requiring work in or placement within a floodplain will be removed in a timely manner from the site in case of a flood warning.
- Temporary facilities will allow for the continued passage of fish. In-water work is not proposed as part of this project

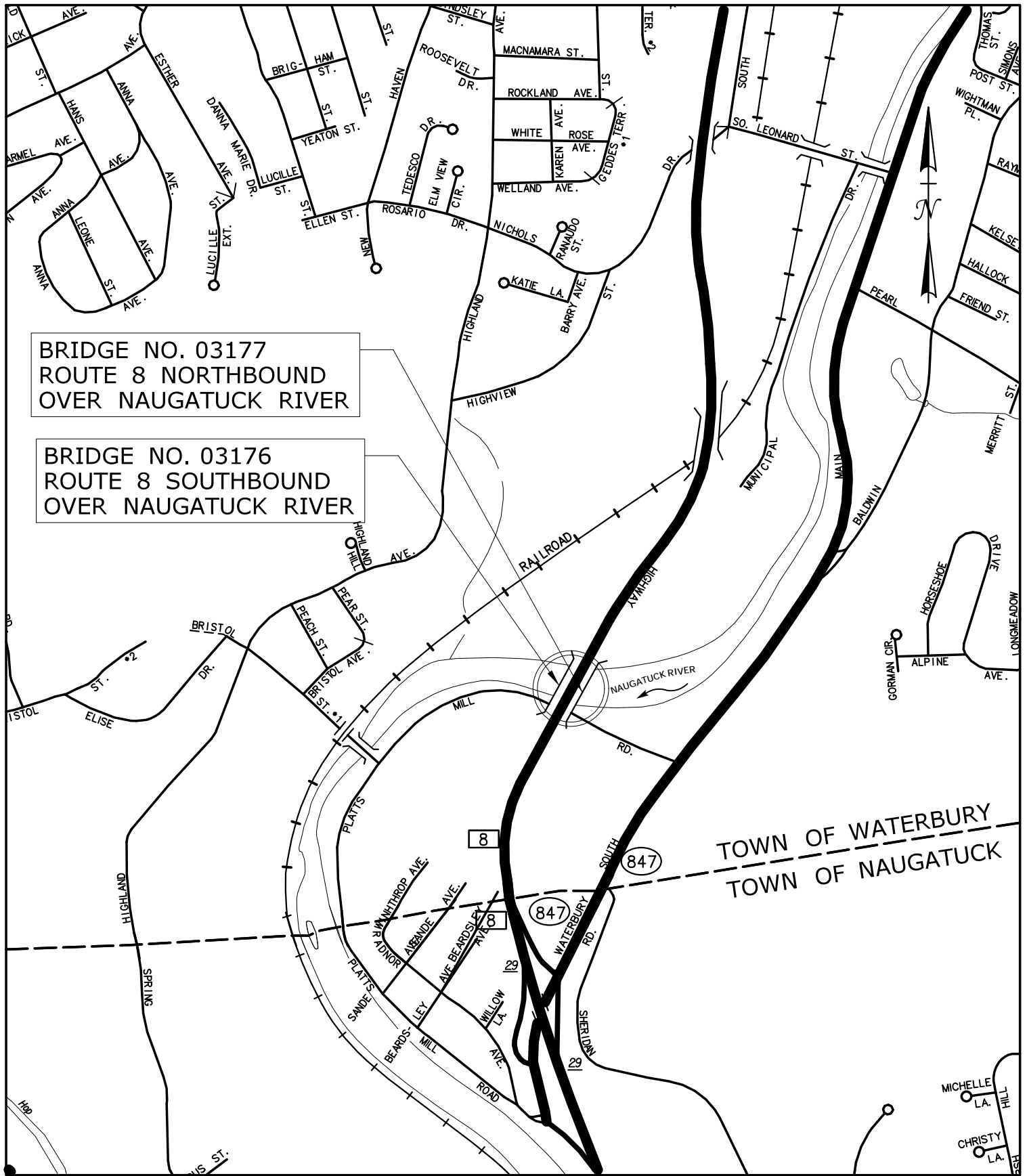
## **ATTACHMENTS**

Attachment A: Location Map

Attachment B: FEMA FIRMette

Attachment C: Pertinent Design Plans

Attachment A: Location Map



BRIDGE NO. 03177  
ROUTE 8 NORTHBOUND  
OVER NAUGATUCK RIVER

BRIDGE NO. 03176  
ROUTE 8 SOUTHBOUND  
OVER NAUGATUCK RIVER

SCALE IN FEET



STATE PROJECT NO.:

151-333

CITY/TOWN:

WATERBURY



**STATE OF CONNECTICUT**  
DEPARTMENT OF TRANSPORTATION



**BRIDGE NO. 03176 AND 03177  
LOCATION MAP**



**CME**  
CME ASSOCIATES, INC.  
333 East River Drive, East Hartford, CT 06108  
860-291-3227 | www.cmeengineering.com

DATE:

10/2016

SHEET NO.:

1 OF 1

Attachment B: FEMA FIRMette

# National Flood Hazard Layer FIRMette



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

|                             |  |   |
|-----------------------------|--|---|
| SPECIAL FLOOD HAZARD AREAS  |  | Without Base Flood Elevation (BFE)<br>Zone A, V, A99  |
|                             |  | With BFE or Depth   |
|                             |  | Regulatory Floodway Zone AE, AO, AH, VE, AR   |
| OTHER AREAS OF FLOOD HAZARD |  | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
|                             |  | Future Conditions 1% Annual Chance Flood Hazard Zone X  |
|                             |  | Area with Reduced Flood Risk due to Levee. See Notes. Zone X  |
|                             |  | Area with Flood Risk due to Levee Zone D  |
| OTHER AREAS                 |  | NO SCREEN Area of Minimal Flood Hazard Zone X   |
|                             |  | Effective LOMRs   |
|                             |  | Area of Undetermined Flood Hazard Zone D  |
| GENERAL STRUCTURES          |  | Channel, Culvert, or Storm Sewer  |
|                             |  | Levee, Dike, or Floodwall   |
| OTHER FEATURES              |  | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation   |
|                             |  | 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation   |
|                             |  | Coastal Transect  |
|                             |  | Base Flood Elevation Line (BFE)   |
|                             |  | Limit of Study  |
|                             |  | Jurisdiction Boundary   |
|                             |  | Coastal Transect Baseline   |
| MAP PANELS                  |  | Digital Data Available  |
|                             |  | No Digital Data Available   |
|                             |  | Unmapped  |

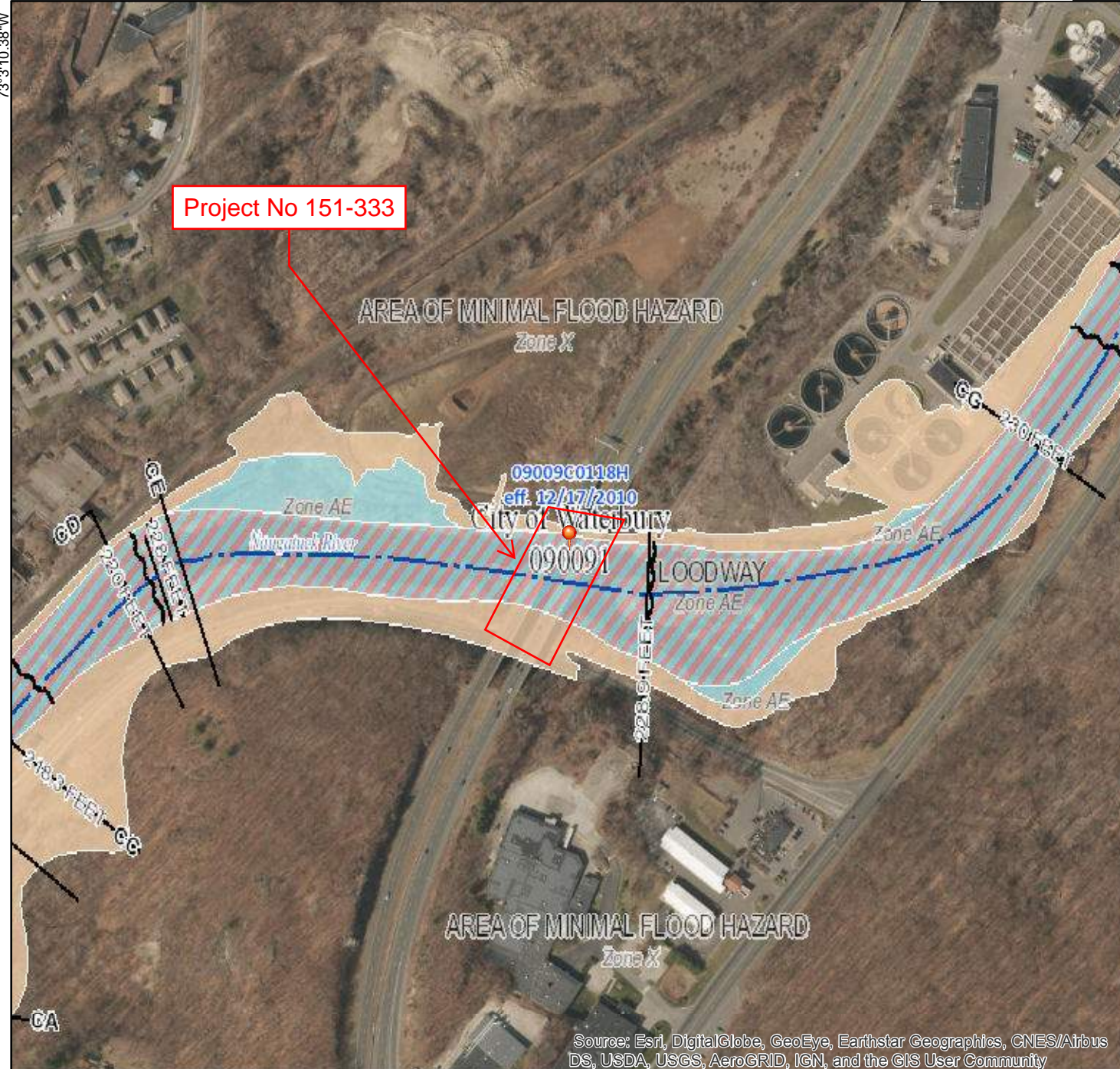


This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **5/17/2018 at 8:39:12 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

41°31'25.34"N



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 250 500 1,000 1,500 2,000 Feet 1:6,000


41°30'58.40"N

73°23'29.92"W

Attachment C: Pertinent Design Plans

15 SHEET 2 OF 6  
S HIGHWAY LINE

— TRANSITION METAL BEAM RAIL  
12.5' (TYPE R-I) TO (TYPE R-B 350)


 SINGLE POST-MOUNTED SIGN  
 STATE/FEDERAL WETLANDS  
 100YR  
 ORDINARY HIGH WATER LINE  
 OHW  
 FEMA 100-YEAR FLOOD LIMIT (CALCULATED)

DRAWING TITLE:  
**HIGHWAY PLAN**

|             |           |
|-------------|-----------|
| PROJECT NO. | 0151-0333 |
| DRAWING NO. | HWY-02    |
| SHEET NO.   |           |

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

DESIGNER/DRAFTER:                     

|             |    |
|-------------|----|
| RECEIVED    | RF |
| CHECKED BY: |    |

SCALE IN FEET

40  
SCALE 1"=40'



STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

Filename: ...\\HW\_MSH-0151-0333-HWY-02.dgn

|                      |  |
|----------------------|--|
| SIGNATURE/<br>BLOCK: |  |
|----------------------|--|

919 MIDDLE STREET  
MIDDLETOWN, CT 06457  
Phone: (860) 635-7740  
Fax: (860) 635-7312

|                |
|----------------|
| PROJECT TITLE: |
|----------------|

**REHABILITATION OF BRIDGE  
NOS. 03176 AND 03177  
ROUTE 8 OVER NAUGATUCK RIVER**

TOWN:

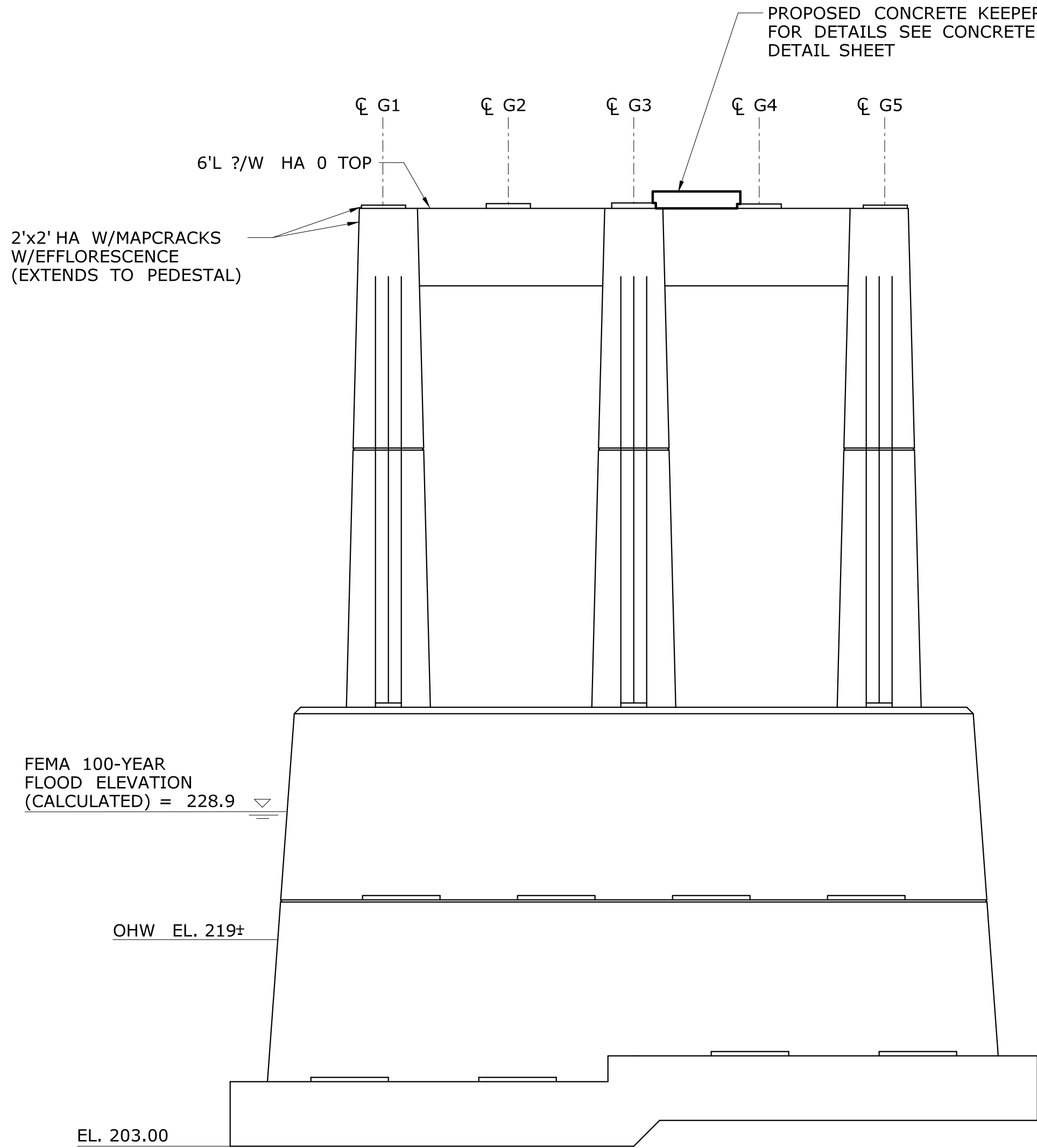
## WATERBURY

DRAWING TITLE:

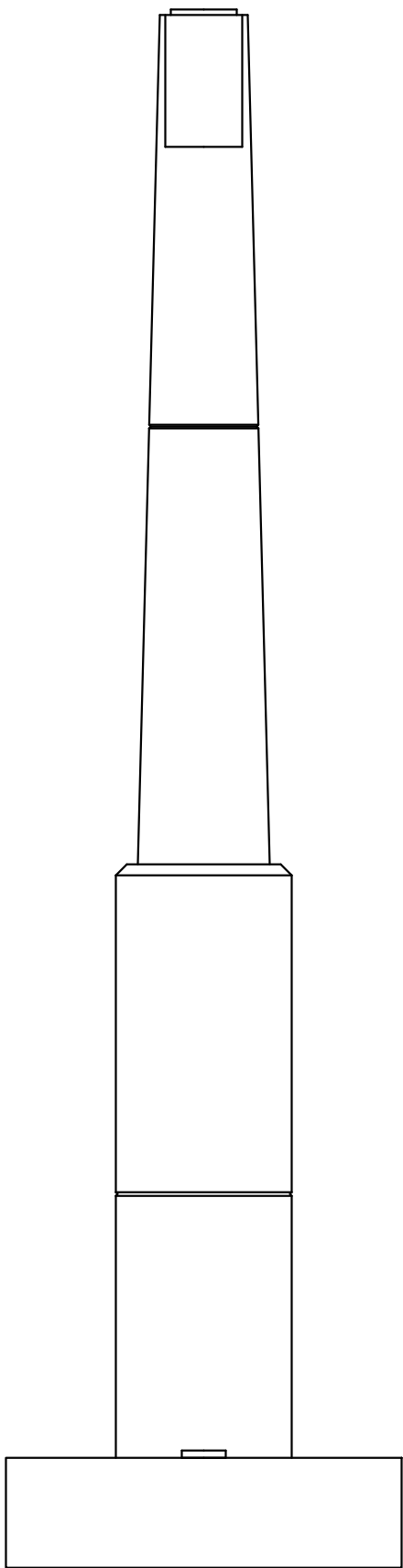
# HIGHWAY PLAN

|      |      |                      |           |
|------|------|----------------------|-----------|
| REV. | DATE | REVISION DESCRIPTION | SHEET NO. |
|------|------|----------------------|-----------|

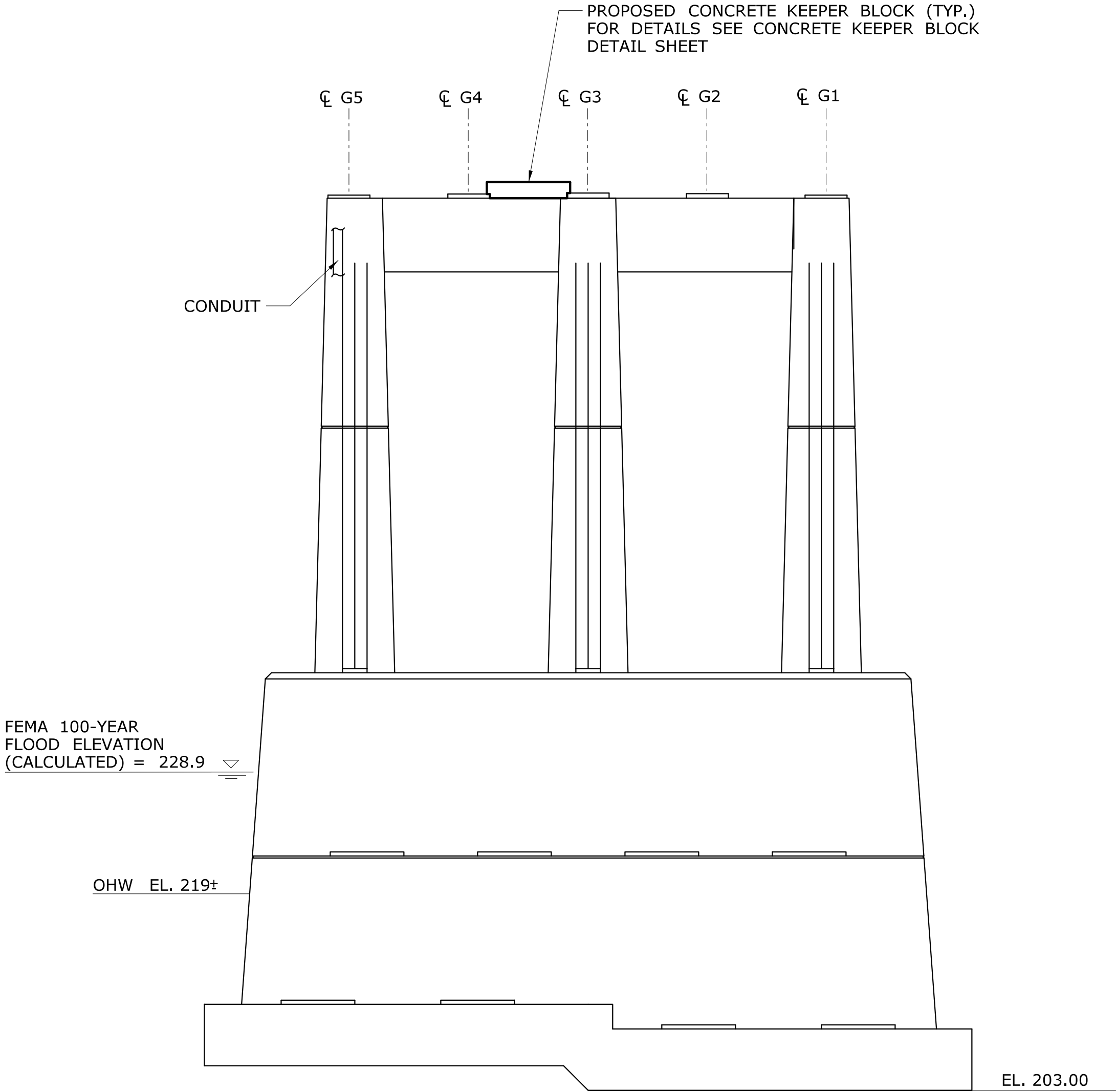




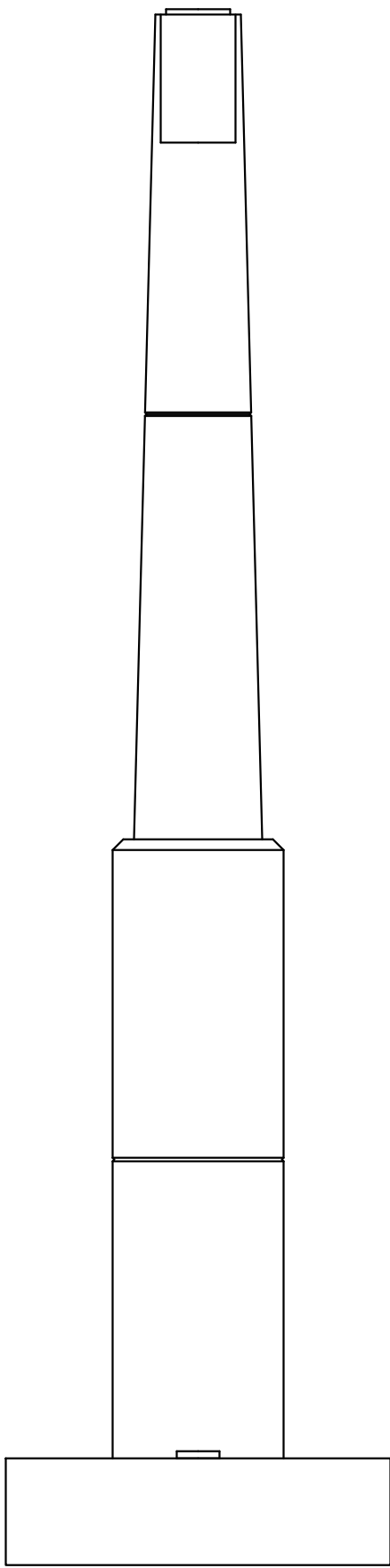
NORTH ELEVATION



EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION

LEGEND:









- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAPCRACKS
- HONEYCOMB AREA
- SCALE AREA
- \* EFFLORESCENCE PRESENT

BRIDGE 03176 PIER NO. 1  
SCALE: 1/8" = 1'-0"



SEMI FINAL DESIGN REVIEW

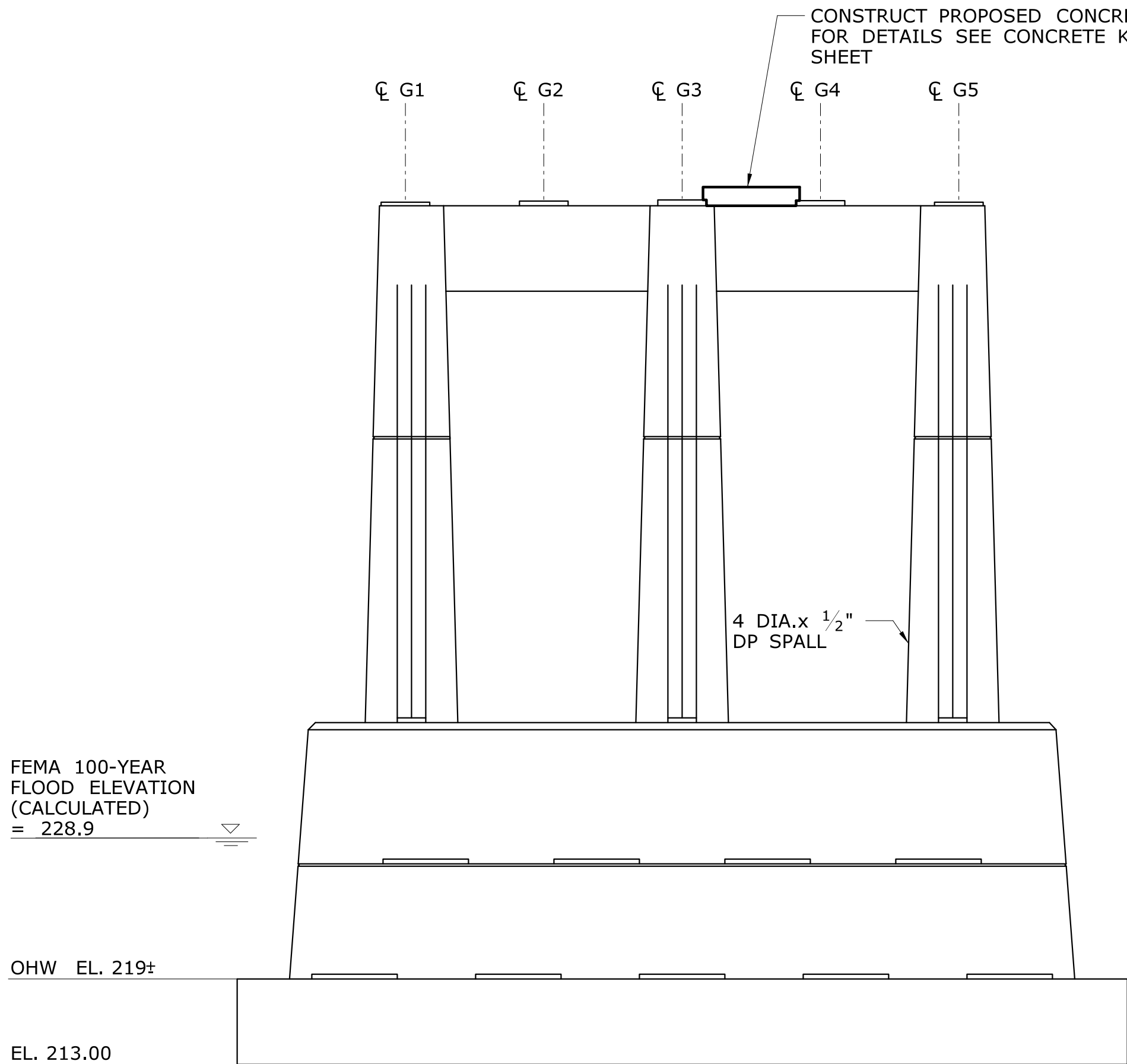
|      |      |                      |  |   |                         |  |  |   |  |   |  |   |  |                    |  |                          |  |
|------|------|----------------------|--|---|-------------------------|--|--|---|--|---|--|---|--|--------------------|--|--------------------------|--|
|      |      |                      |  | THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED. |                         | DESIGNER/DRAFTER: -<br>CHECKED BY: -<br>SCALE AS NOTED |  | STATE OF CONNECTICUT<br>DEPARTMENT OF TRANSPORTATION                  |  | SIGNATURE/<br>BLOCK:  |  | PROJECT TITLE:<br>REHABILITATION OF BRIDGE NOS. 03176 AND 03177<br>ROUTE 8 OVER NAUGATUCK RIVER |  | TOWN:<br>WATERBURY |  | PROJECT NO.<br>0151-0333 |  |
|      |      |                      |  |   |                         |  |  |   |  |   |  |   |  |                    |  | DRAWING NO.<br>S-08      |  |
|      |      |                      |  |   |                         |  |  |   |  |   |  |   |  |                    |  | SHEET NO.                |  |
| REV. | DATE | REVISION DESCRIPTION |  | SHEET NO.   | Plotted Date: 9/17/2019 |  |  | Filename: ...\\S-08-SB-MSH-BR03176-0151-0333-PIER1REPAIRLOCATIONS.dgn |  | AI Engineers<br>AT ENGINEERS, INC.<br>919 MIDDLE STREET<br>MIDDLETOWN, CT 06457<br>PHONE: (860) 635-7740<br>FAX: (860) 635-7312 |  |   |  |                    |  |                          |  |



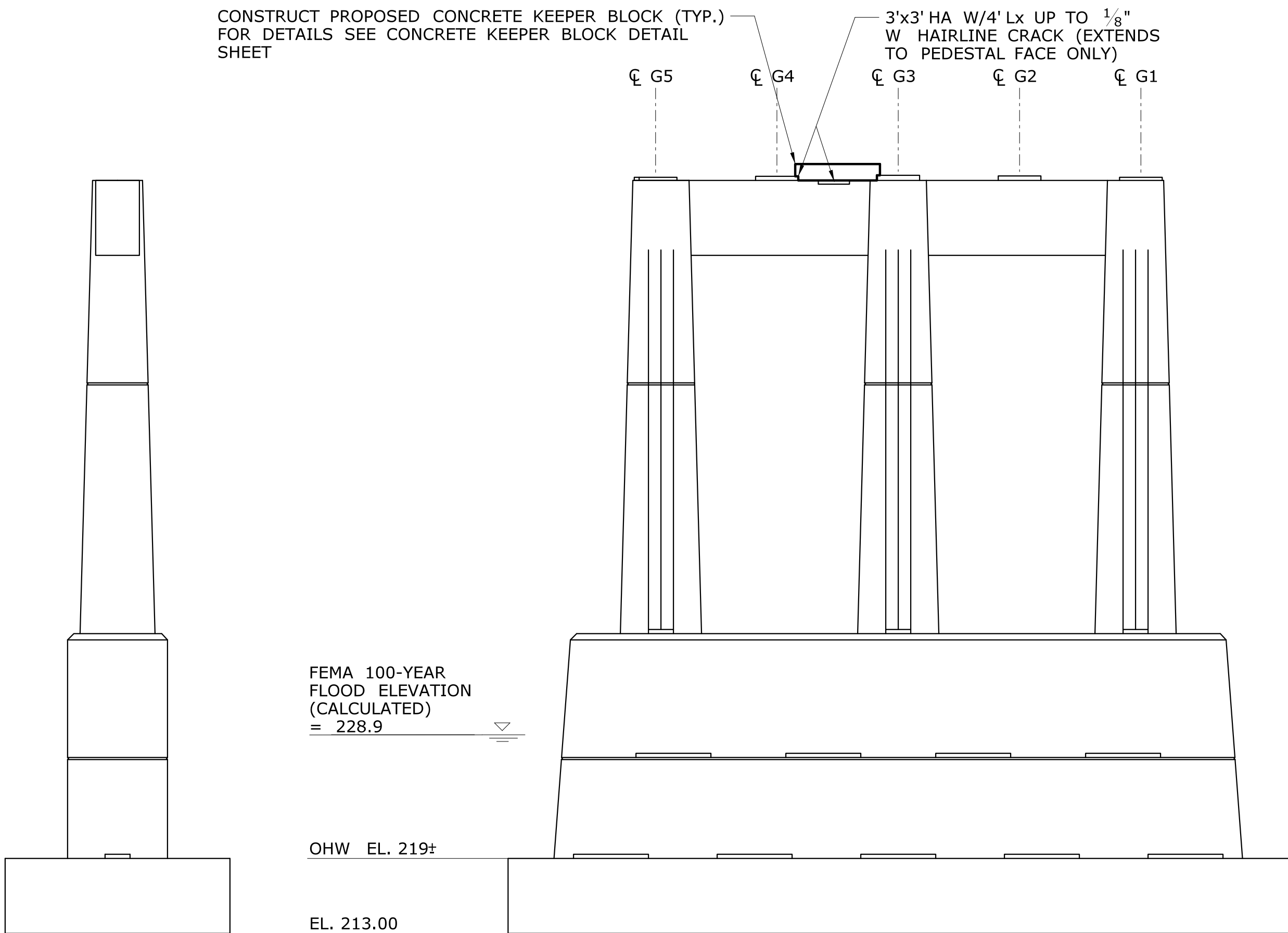
|   |                               |
|---|-------------------------------|
|  | HOLLOW AREA                   |
|  | SHALLOW REBAR                 |
|  | SPALL AREA                    |
|  | SPALL AREA WITH EXPOSED REBAR |
|  | MAPCRACKS                     |
|   |                               |
|  | HONEYCOMB AREA                |
|  | SCALE AREA                    |
|  | EFFLORESCEENCE PRESENT        |

SCALE:  $\frac{1}{8}" = 1'-0"$

|  |  |  |  |   |  |   |  |   |  |   |  |   |  |                                |  |                               |  |                                     |  |
|--|--|--|--|---|--|---|--|---|--|---|--|---|--|--------------------------------|--|-------------------------------|--|-------------------------------------|--|
|  |  |  |  | THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED. |  | DESIGNER/DRAFTER:<br>-<br>CHECKED BY:<br>-<br><br>SCALE AS NOTED      |  | <br><b>STATE OF CONNECTICUT</b><br><b>DEPARTMENT OF TRANSPORTATION</b> |  | <br><b>AI Engineers</b><br>AI ENGINEERS, INC.<br>919 MIDDLE STREET<br>MIDDLETOWN, CT 06457<br>PHONE: (860) 635-7740<br>FAX: (860) 635-7312 |  | PROJECT TITLE:<br><br><b>REHABILITATION OF BRIDGE NOS. 03176 AND 03177</b><br><b>ROUTE 8 OVER NAUGATUCK RIVER</b> |  |                                |  | TOWN:<br><br><b>WATERBURY</b> |  | PROJECT NO.<br><br><b>0151-0333</b> |  |
| REV. DATE REVISION DESCRIPTION SHEET NO. |  |  |  | Plotted Date: 9/17/2019   |  | Filename: ...\\S_09_SB_MSH_BR03176.0151-0333_PIER2REPAIRLOCATIONS.dgn |  |   |  | DRAWING TITLE:<br><br><b>BRIDGE NO. 03176</b><br><b>PIER NO. 2 REPAIR LOCATIONS</b>   |  |   |  | DRAWING NO.<br><br><b>S-09</b> |  | SHEET NO.                     |  |                                     |  |



**NORTH ELEVATION**



**SOUTH ELEVATION**

**EAST ELEVATION**

**WEST ELEVATION**

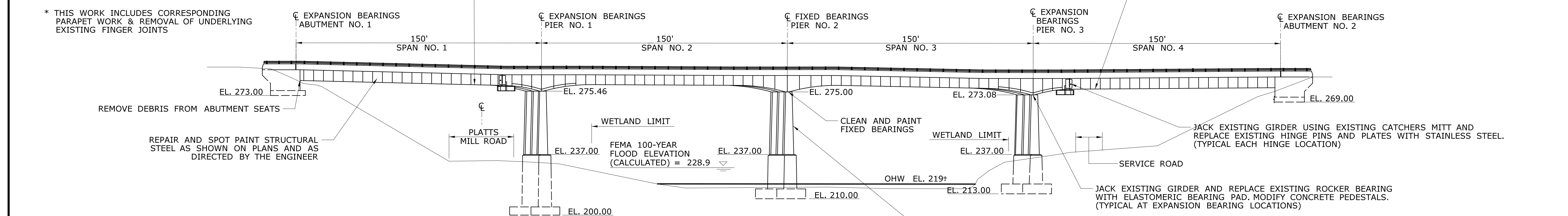
**LEGEND:**

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAPCRACKS
- HONEYCOMB AREA
- SCALE AREA
- \* EFFLORESCEENCE PRESENT

**BRIDGE 03176 PIER NO. 3**  
SCALE: 1/8" = 1'-0"

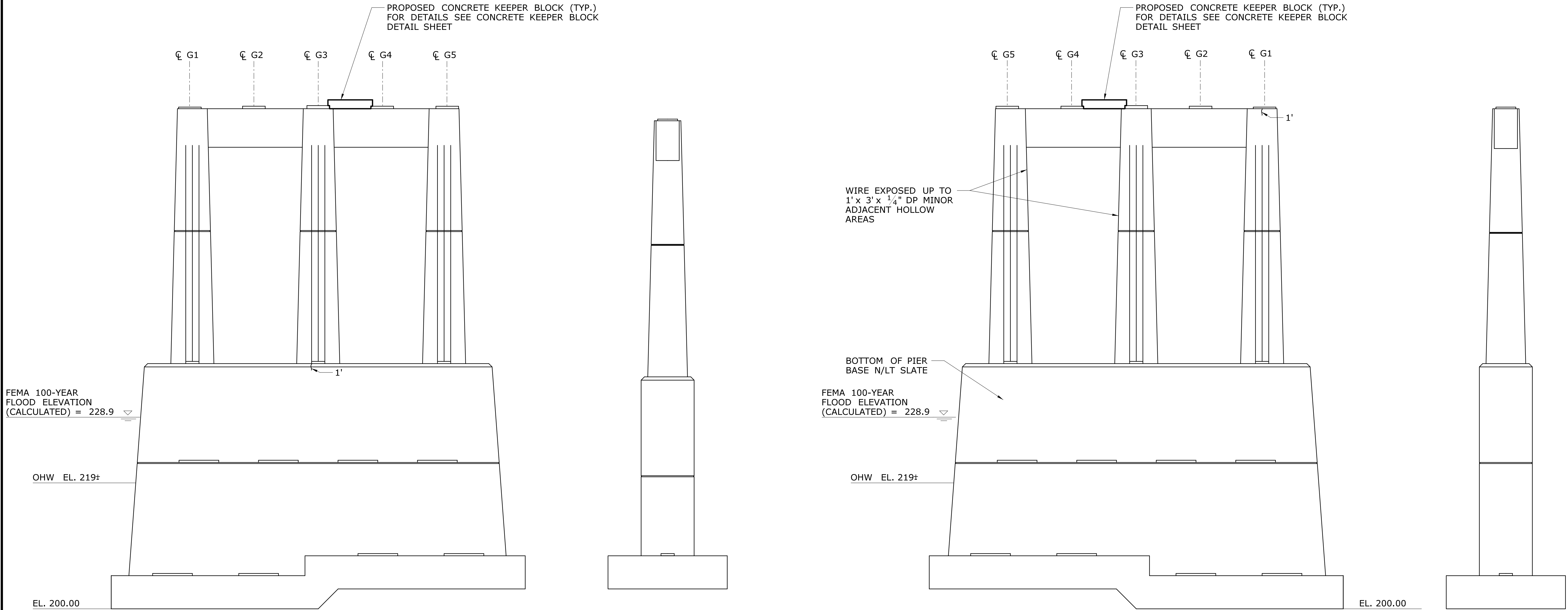
**SEMI FINAL DESIGN REVIEW**

|      |      |                      |           |   |  |  |  |   |   |  |                                 |
|------|------|----------------------|-----------|---|--|--|--|---|---|--|---------------------------------|
|      |      |                      |           | THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED. |  | DESIGNER/DRAFTER:<br>-<br>CHECKED BY:<br>-<br>SCALE AS NOTED | <br><b>STATE OF CONNECTICUT<br/>DEPARTMENT OF TRANSPORTATION</b><br>Filename: ...\\S. 10. SB. MSH. BR03176. 0151. 0333. PIER3REPAIRLOCATIONS.dgn | SIGNATURE/<br>BLOCK:<br><br><br>AI Engineers<br>919 MIDDLE STREET<br>MIDDLETOWN, CT 06457<br>PHONE: (860) 635-7740<br>FAX: (860) 635-7312 | PROJECT TITLE:<br><br><b>REHABILITATION OF BRIDGE<br/>NOS. 03176 AND 03177<br/>ROUTE 8 OVER NAUGATUCK RIVER</b> | TOWN:<br><br><b>WATERBURY</b><br><br>DRAWING TITLE:<br><b>BRIDGE NO. 03176<br/>PIER NO. 3 REPAIR LOCATIONS</b> | PROJECT NO.<br><b>0151-0333</b> |
| REV. | DATE | REVISION DESCRIPTION | SHEET NO. | Plotted Date: 9/17/2019   |  |  |  |   |   |  | DRAWING NO.<br><b>S-10</b>      |



NOTE: SUBSTRUCTURE ELEVATIONS ARE TAKEN FROM CONNDOT PROJECT NO. 87-88 DATED 1963.





NORTH ELEVATION

EAST ELEVATION

SOUTH ELEVATION

WEST ELEVATION

LEGEND:

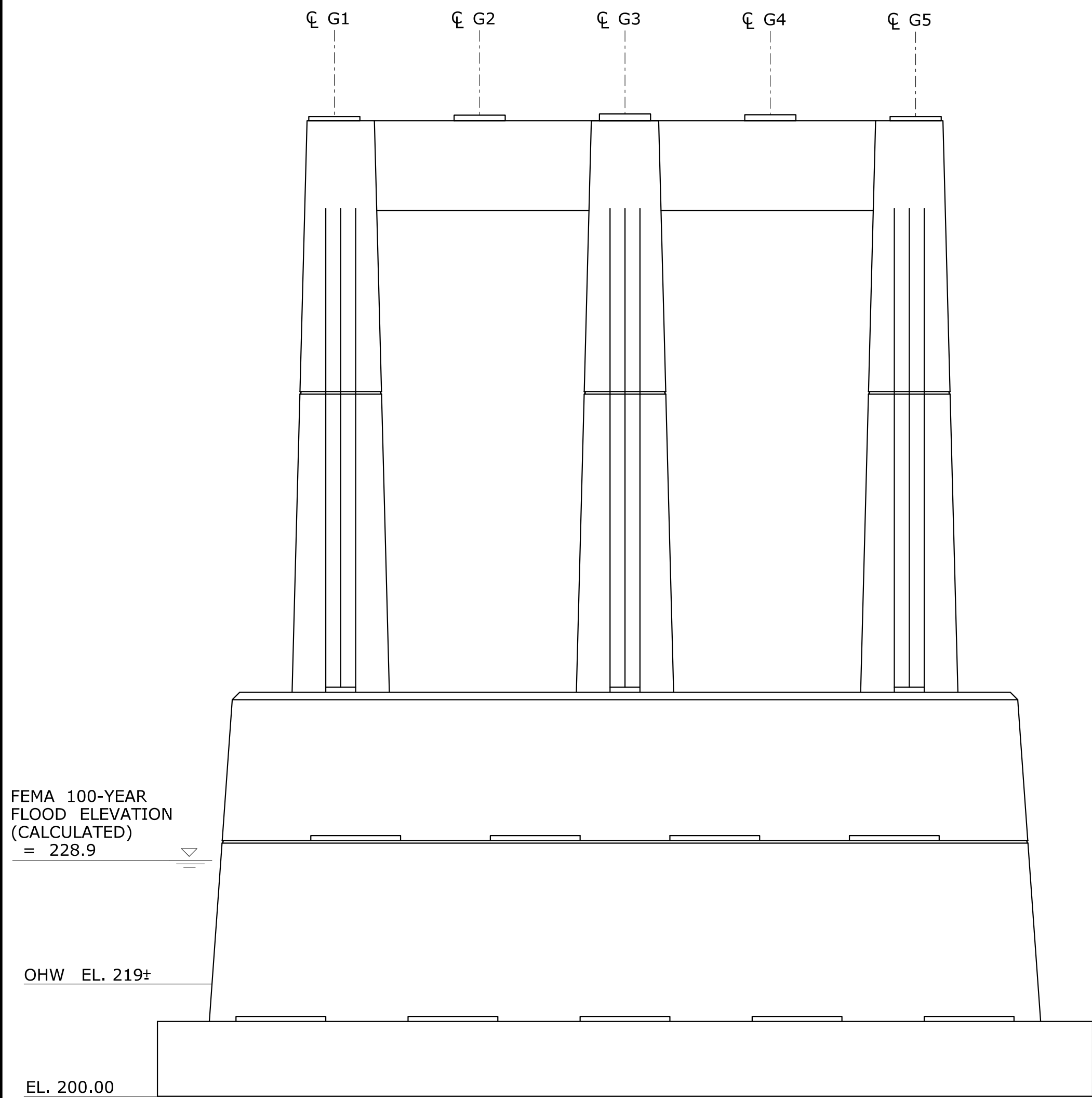
- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAPCRACKS
- HONEYCOMB AREA
- SCALE AREA
- \* EFFLORESCENCE PRESENT

BRIDGE 03177 PIER NO. 1

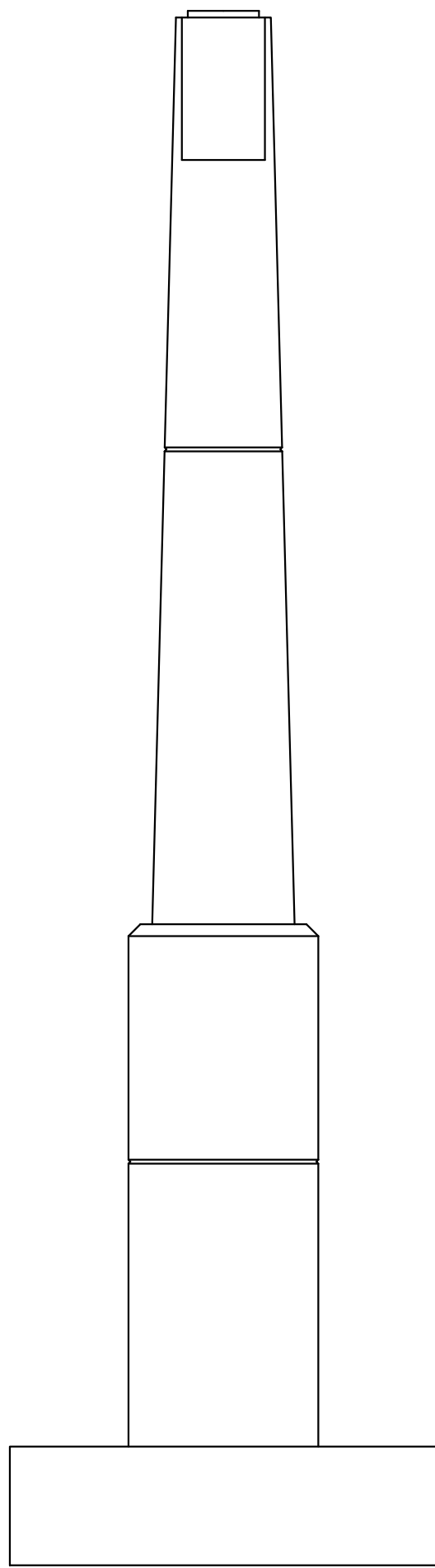
SCALE: 1/8" = 1'-0"

SEMI FINAL DESIGN REVIEW

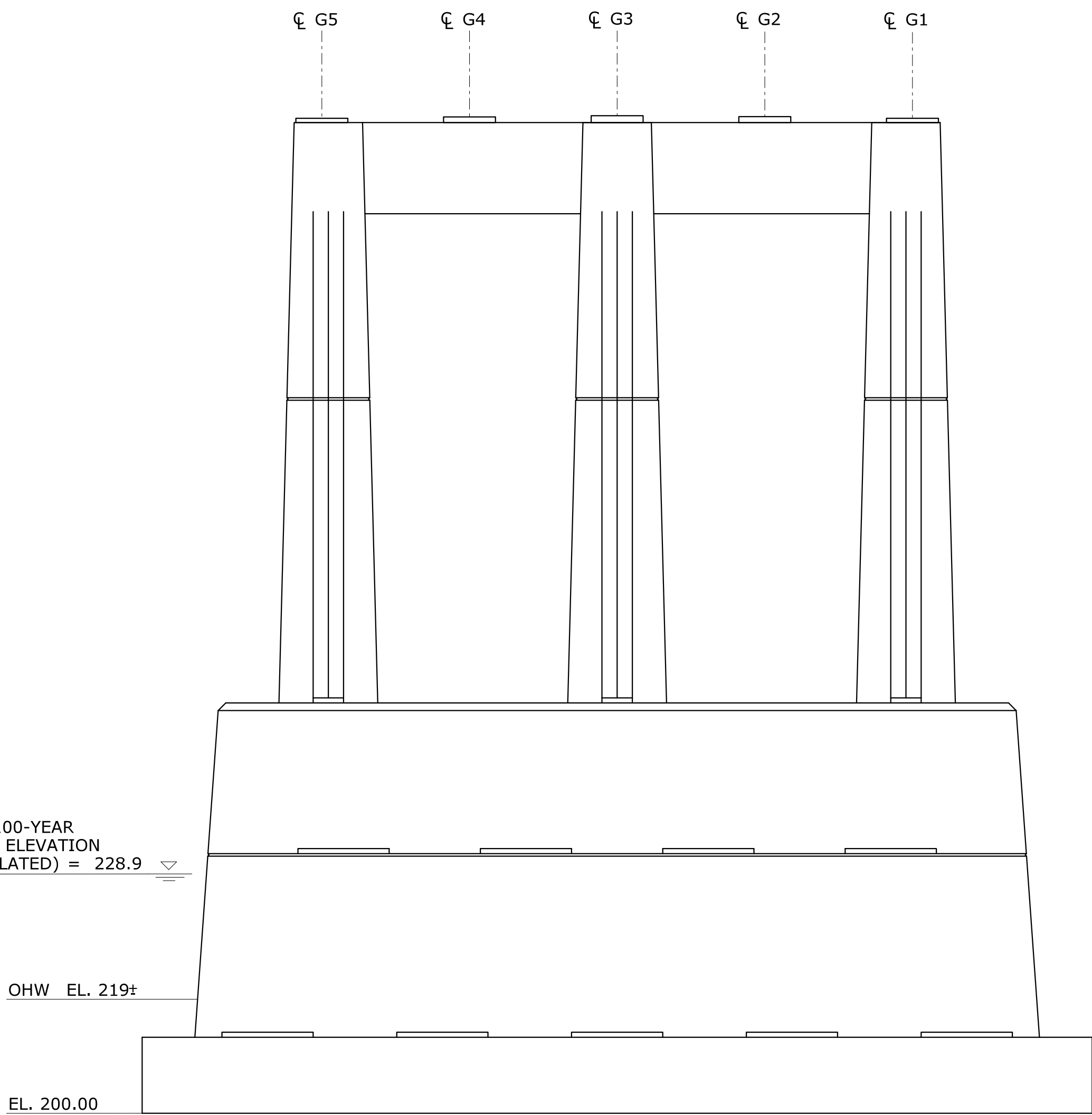
|  |  |  |  |   |  |  |  |
|--|--|--|--|---|--|--|--|
|  |  |  |  | THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED. |  | DESIGNER/DRAFTER:<br>-<br><br>CHECKED BY:<br>-<br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br> |  |
|--|--|--|--|---|--|--|--|



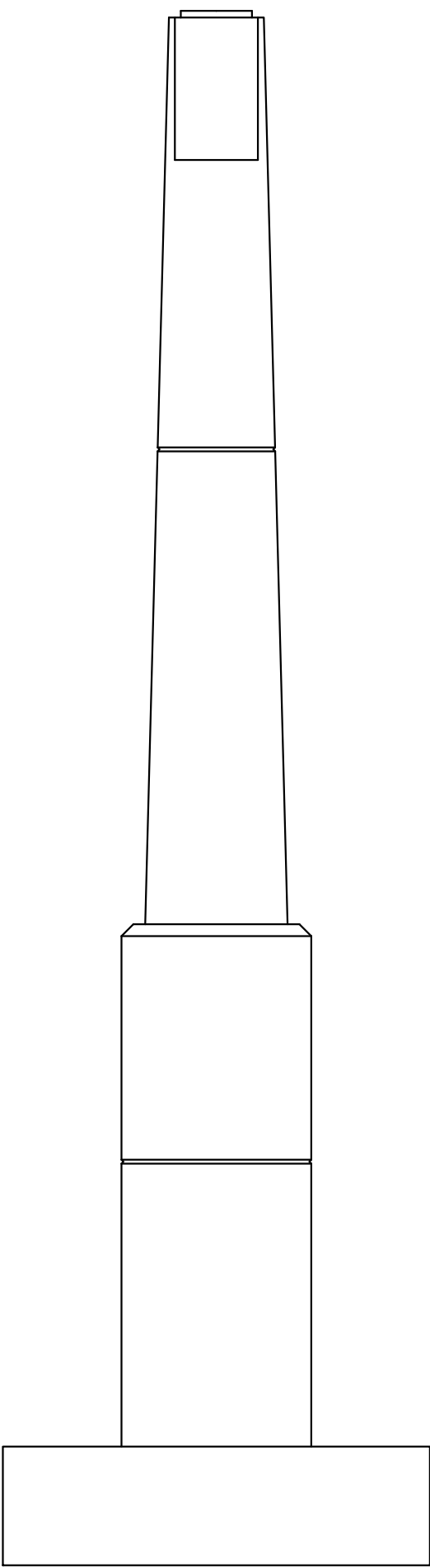
NORTH ELEVATION



EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION

LEGEND:

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAPCRACKS
- HONEYCOMB AREA
- SCALE AREA
- \* EFFLORESCENCE PRESENT

BRIDGE 03177 PIER NO. 2

SCALE: 1/8" = 1'-0"

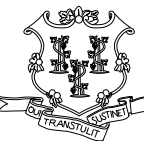
SEMI FINAL DESIGN REVIEW

| REV. | DATE | REVISION DESCRIPTION | SHEET NO. |
|------|------|----------------------|-----------|
|      |      |                      |           |
|      |      |                      |           |
|      |      |                      |           |
|      |      |                      |           |
|      |      |                      |           |


THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 9/17/2019

|                   |   |
|-------------------|---|
| DESIGNER/DRAFTER: | - |
| CHECKED BY:       | - |
| SCALE AS NOTED    |   |



STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION



Filename: ...\\S-09-SB-MSH-BR03177-0151-0333-PIER2REPAIRLOCATIONS.dgn

SIGNATURE/  
BLOCK:

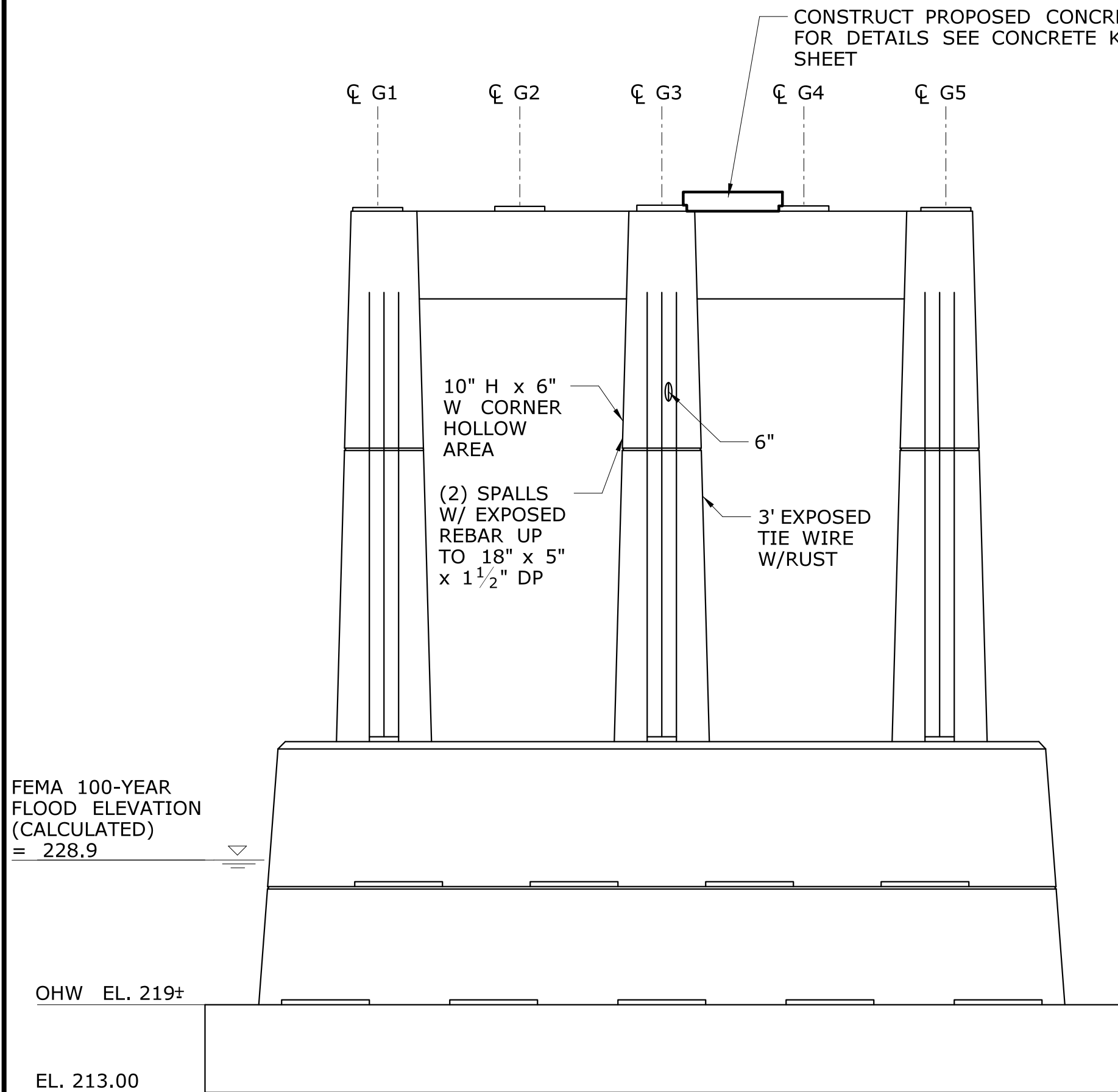


AI Engineers

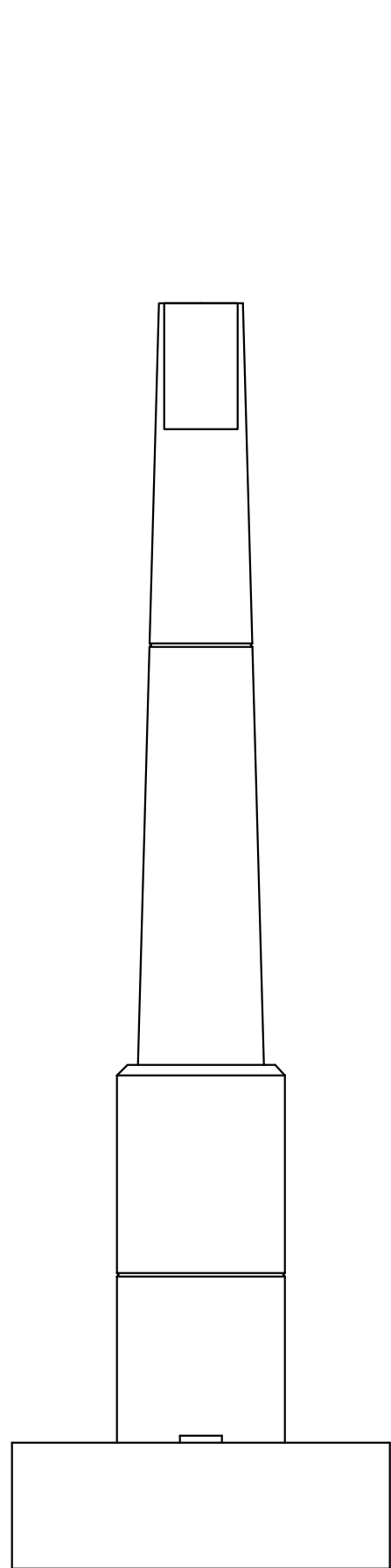
AI ENGINEERS, INC.  
919 MIDDLE STREET  
MIDDLETOWN, CT 06457  
PHONE: (860) 635-7740  
FAX: (860) 635-7312

PROJECT TITLE:  
**REHABILITATION OF BRIDGE  
NOS. 03176 AND 03177  
ROUTE 8 OVER NAUGATUCK RIVER**

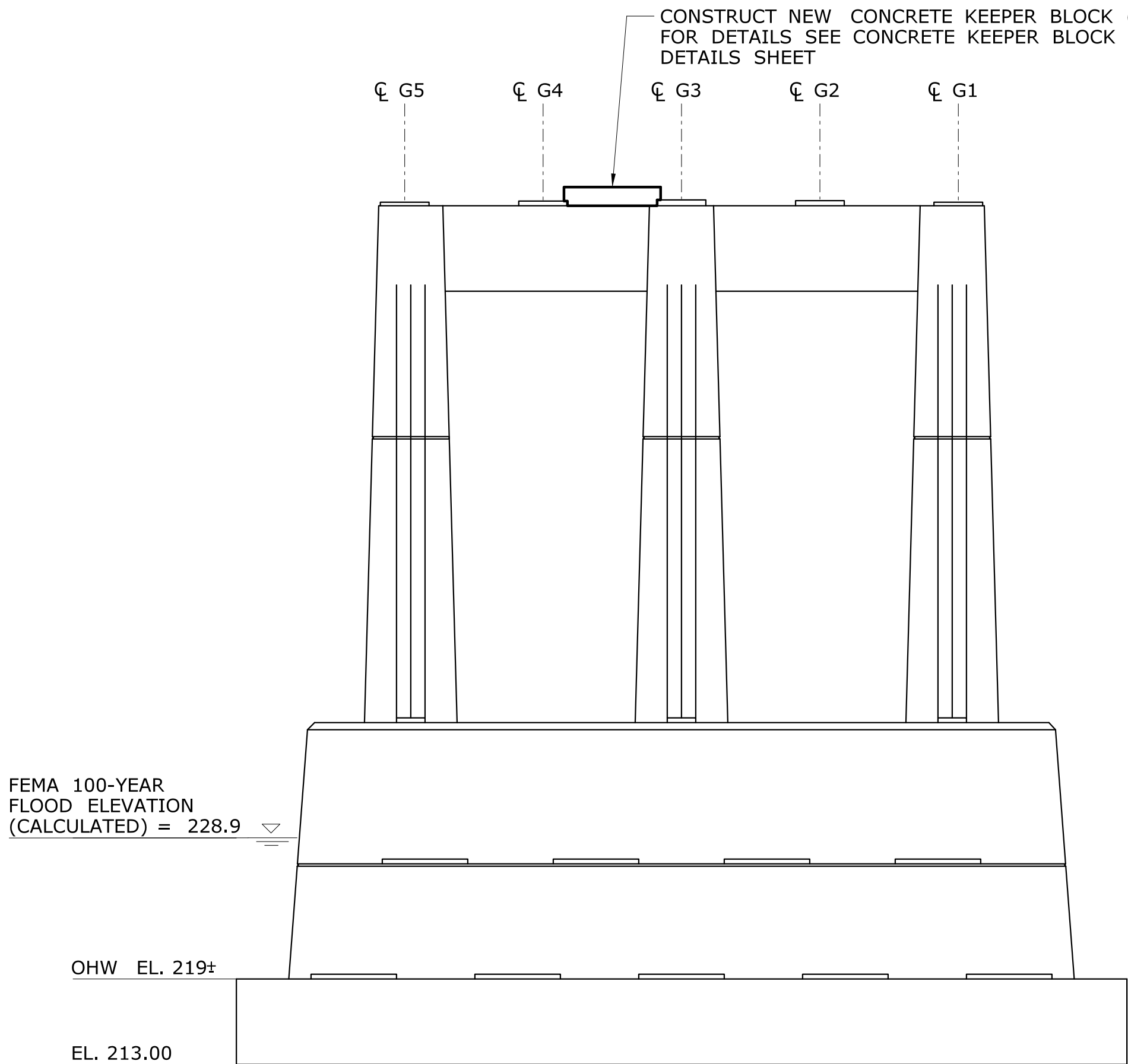
|                |   |             |                  |
|----------------|---|-------------|------------------|
| TOWN:          | <b>WATERBURY</b>  | PROJECT NO. | <b>0151-0333</b> |
| DRAWING TITLE: | <b>BRIDGE NO. 03177<br/>PIER NO. 2 REPAIR LOCATIONS</b> | DRAWING NO. | <b>S-09</b>      |
|                |   | SHEET NO.   |                  |



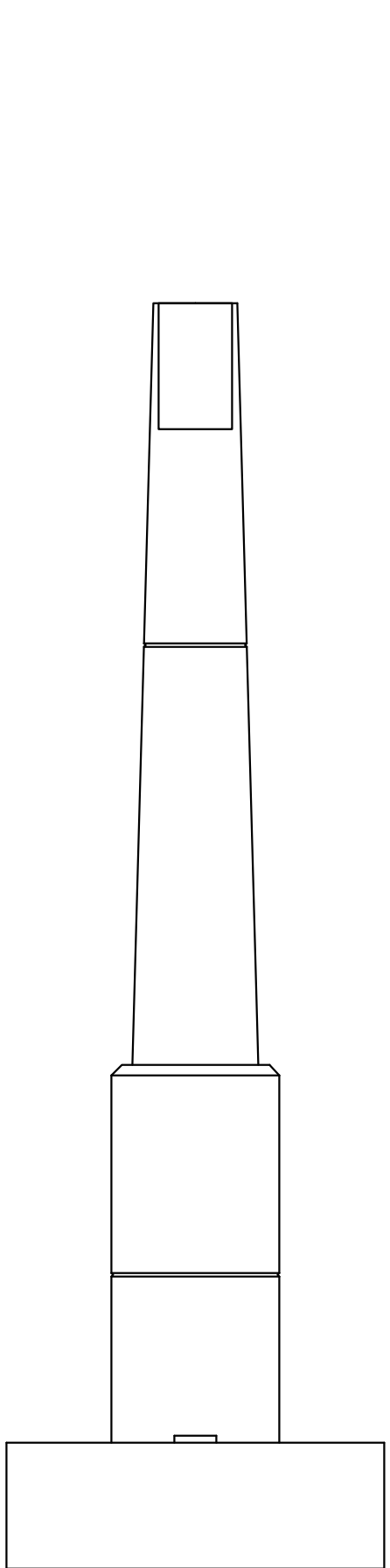
**NORTH ELEVATION**



**EAST ELEVATION**











**SOUTH ELEVATION**



**WEST ELEVATION**

**LEGEND:**

-  HOLLOW AREA
-  SHALLOW REBAR
-  SPALL AREA
-  SPALL AREA WITH EXPOSED REBAR
-  MAPCRACKS
-  HONEYCOMB AREA
-  SCALE AREA
-  \* EFFLORESCEENCE PRESENT

**BRIDGE 03177 PIER NO. 3**

SCALE: 1/8" = 1'-0"


**SEMI FINAL DESIGN REVIEW**


| REV. | DATE | REVISION DESCRIPTION | SHEET NO. |
|------|------|----------------------|-----------|
|      |      |                      |           |
|      |      |                      |           |
|      |      |                      |           |
|      |      |                      |           |
|      |      |                      |           |

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 9/17/2019

|                   |   |
|-------------------|---|
| DESIGNER/DRAFTER: | - |
| CHECKED BY:       | - |
| SCALE AS NOTED    |   |

**STATE OF CONNECTICUT**  
**DEPARTMENT OF TRANSPORTATION**



Filename: ...\\S. 10. SB. MSH. BR03177. 0151. 0333. PIER3REPAIRLOCATIONS.dgn

SIGNATURE/  
BLOCK:

**AI** Engineers  
AI ENGINEERS, INC.  
919 MIDDLE STREET  
MIDDLETOWN, CT 06457  
PHONE: (860) 635-7740  
FAX: (860) 635-7312

PROJECT TITLE:  
**REHABILITATION OF BRIDGE  
NOS. 03176 AND 03177  
ROUTE 8 OVER NAUGATUCK RIVER**

TOWN:  
**WATERBURY**  
DRAWING TITLE:  
**BRIDGE NO. 03177  
PIER NO. 3 REPAIR LOCATIONS**

PROJECT NO.  
**0151-0333**  
DRAWING NO.  
**S-10**  
SHEET NO.

## **Construction Contracts - Required Contract Provisions (FHWA Funded Contracts)**

### **Index**

1. Federal Highway Administration (FHWA) Form 1273 (Revised May 1, 2012)
2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
3. Contractor Work Force Utilization (Federal Executive Order 11246) / Specific Equal Employment Opportunity
4. Requirements of Title 49, CFR, Part 26, Participation by DBEs
5. Contract Wage Rates
6. Americans with Disabilities Act of 1990, as Amended
7. Connecticut Statutory Labor Requirements
  - a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
  - b. Debarment List - Limitation on Awarding Contracts
  - c. Construction Safety and Health Course
  - d. Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited
  - e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)
8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
9. Executive Orders (State of CT)
10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised)
11. Whistleblower Provision
12. Connecticut Freedom of Information Act
  - a. Disclosure of Records
  - b. Confidential Information
13. Service of Process
14. Substitution of Securities for Retainages on State Contracts and Subcontracts
15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
16. Forum and Choice of Law

17. Summary of State Ethics Laws
18. Audit and Inspection of Plants, Places of Business and Records
19. Campaign Contribution Restriction
20. Tangible Personal Property
21. Bid Rigging and/or Fraud – Notice to Contractor
22. Consulting Agreement Affidavit
23. Federal Cargo Preference Act Requirements (46 CFR 381.7(a)-(b))

**Index of Exhibits**

- EXHIBIT A – FHWA Form 1273 (Begins on page 14)
- EXHIBIT B – Title VI Contractor Assurances (page 34)
- EXHIBIT C – Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity (page 36)
- EXHIBIT D – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 43)
- EXHIBIT E - Campaign Contribution Restriction (page 51)
- EXHIBIT F – Federal Wage Rates (Attached at the end)
- EXHIBIT G - State Wage Rates and Other Related Information (Attached at the end)

### **1. Federal Highway Administration (FHWA) Form 1273**

The Contractor shall comply with the Federal Highway Administration (FHWA), Form 1273 attached at Exhibit A, as revised, which is hereby made part of this contract. The Contractor shall also require its subcontractors to comply with the FHWA – Form 1273 and include the FHWA – Form 1273 as an attachment to all subcontracts and purchase orders.

### **2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements**

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit B, all of which are hereby made a part of this Contract.

### **3. Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity**

- (a) The Contractor shall comply with the Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity requirements attached at Exhibit C and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of \$10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.
- (b) Companies with contracts, agreements or purchase orders valued at \$10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

### **4. Requirements of Title 49, Code of Federal Regulations (CFR), Part 26, Participation by DBEs, as may be revised.**

Pursuant to 49 CFR 26.13, the following paragraph is part of this Contract and shall be included in each subcontract the Contractor enters into with a subcontractor:

“The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26, Participation by DBEs, in the award and administration of U.S. DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this contract or such other remedy as ConnDOT (recipient) deems appropriate, which may include, but is not limited to: (1) Withholding monthly progress payments, (2) Assessing sanctions, (3) Liquidated damages; and/or, (4) Disqualifying the contractor from future bidding as non-responsible.”

## **5. Contract Wage Rates**

The Contractor shall comply with:

The Federal and State wage rate requirements indicated in Exhibits F and G hereof, as revised, are hereby made part of this Contract. The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (<http://www.wdol.gov/dba.aspx>) as may be revised 10 days prior to bid opening. These applicable Federal wage rates will be physically incorporated in the final contract document executed by both parties. The Department will no longer physically include revised Federal wage rates in the bid documents or as part of addenda documents, prior to the bid opening date. During the bid advertisement period, bidders are responsible for obtaining the appropriate Federal wage rates from the US Department of Labor website.

To obtain the latest Federal wage rates go to the US Department of Labor website (link above). Under Davis-Bacon Act, choose "Selecting DBA WDs" and follow the instruction to search the latest wage rates for the State, County and Construction Type. Refer to the Notice to Contractor (NTC) - Federal Wage Determinations (Davis Bacon Act).

If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by Section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation's Standard Specification for Roads, Bridges and Incidental Construction (FORM 817), as may be revised, every Contractor or subcontractor performing project work on a Federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

## **6. Americans with Disabilities Act of 1990, as Amended**

This provision applies to those Contractors who are or will be responsible for compliance with the terms of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. 12101 et seq.), (Act), during the term of the Contract. The Contractor represents that it is familiar with the terms of this Act and that it is in compliance with the Act. Failure of the Contractor to satisfy this standard as the same applies to performance under this Contract, either now or during the term of the Contract as it may be amended, will render the Contract voidable at the option of the State upon notice to the contractor. The Contractor warrants that it will hold the State harmless and indemnify the State from any liability which may be imposed upon the State as a result of any failure of the Contractor to be in compliance with this Act, as the same applies to performance under this Contract.

## **7. Connecticut Statutory Labor Requirements**

**(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates.** The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or

worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

**(b) Debarment List. Limitation on Awarding Contracts.** The Contractor shall comply with Section 31-53a of the Connecticut General Statutes, as revised.

**(c) Construction Safety and Health Course.** The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 of the Connecticut General Statutes, as revised, on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

**(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited.** The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

**(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS.** Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states

## **8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)**

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is

responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at [www.ct.gov/DRS](http://www.ct.gov/DRS) to download and print Connecticut tax forms; or  
Telephone: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

## 9. Executive Orders

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the contract as if they had been fully set forth in it. The contract may also be subject to Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services and to Executive Order No. 49 of Governor Dannel P. Malloy, promulgated May 22, 2015, mandating disclosure of certain gifts to public employees and contributions to certain candidates for office. If Executive Order No. 14 and/or Executive Order No. 49 are applicable, they are deemed to be incorporated into and are made a part of the contract as if they had been fully set forth in it. At the Contractor's request, the Department shall provide a copy of these orders to the Contractor.

**10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.**

(a) For purposes of this Section, the following terms are defined as follows:

- (1) "Commission" means the Commission on Human Rights and Opportunities;
- (2) "Contract" and "contract" include any extension or modification of the Contract or contract;
- (3) "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- (4) "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose.
- (5) "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;
- (6) "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted

efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;

- (7) "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced;
- (8) "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- (9) "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes § 32-9n; and
- (10) "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the State of Connecticut, including, but not limited to municipalities, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state of the United States, including but not limited to, the District of Columbia, Puerto Rico, U.S. territories and possessions, and federally recognized Indian tribal governments, as defined in Connecticut General Statutes § 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3), or (4) of this subsection.

- (b) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor

agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

- (c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.
- (d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.
- (e) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.
- (f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.
- (g) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes § 46a-56.
- (h) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by

regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

Please be aware the Nondiscrimination Certifications can be found at the Office of Policy and Management website:

<https://portal.ct.gov/OPM/Fin-PSA/Forms/Nondiscrimination-Certification>

## **11. Whistleblower Provision**

The following clause is applicable if the Contract has a value of Five Million Dollars (\$5,000,000) or more.

**Whistleblowing.** This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, the Contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of this Contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation, each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

## **12. Connecticut Freedom of Information Act**

- (a) Disclosure of Records.** This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.
- (b) Confidential Information.** The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular

sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as "CONFIDENTIAL," DOT will first review the Contractor's claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.*, Conn. Gen. Stat. §1-210(b)(5)(A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

### **13. Service of Process**

The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoints the Secretary of State of the State of Connecticut, and his successors in office, as agent for service of process for any action arising out of or as a result of this Contract; such appointment to be in effect throughout the life of this Contract and six (6) years thereafter.

### **14. Substitution of Securities for Retainages on State Contracts and Subcontracts**

This Contract is subject to the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised.

### **15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)**

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit D, and hereby made part of this Contract.

### **16. Forum and Choice of Law**

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of

Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

## **17. Summary of State Ethics Laws**

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethics laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract.

## **18. Audit and Inspection of Plants, Places of Business and Records**

- (a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, "Contractor Parties" means the Contractor's members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.
- (b) The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.
- (c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.
- (d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.
- (e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.
- (f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

## **19. Campaign Contribution Restriction**

For all State contracts, defined in Conn. Gen. Stat. §9-612(f)(1) as having a value in a calendar year of \$50,000 or more, or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this contract expressly acknowledges receipt of the State

Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice, as set forth in "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations," a copy of which is attached hereto and hereby made a part of this contract, attached as Exhibit E.

## **20. Tangible Personal Property**

- (a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:
- (1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;
  - (2) A customer's payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;
  - (3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;
  - (4) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and
  - (5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.
- (b) For purposes of this section of the Contract, the word "Affiliate" means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word "voting security" means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. "Voting security" includes a general partnership interest.
- (c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State's contracting authority, such information as the State may require to ensure, in the State's sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

## **21. Bid Rigging and/or Fraud – Notice to Contractor**

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free "HOT LINE" telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The "HOT LINE" telephone number will be available during

normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially and anonymity respected.

## **22. Consulting Agreement Affidavit**

The Contractor shall comply with Connecticut General Statutes Section 4a-81(a) and 4a-81(b), as revised. Pursuant to Public Act 11-229, after the initial submission of the form, if there is a change in the information contained in the form, a contractor shall submit the updated form, as applicable, either (i) not later than thirty (30) days after the effective date of such change or (ii) prior to execution of any new contract, whichever is earlier.

The Affidavit/Form may be submitted in written format or electronic format through the Department of Administrative Services (DAS) website.

## **23. Cargo Preference Act Requirements (46 CFR 381.7(a)-(b)) – Use of United States Flag Vessels**

The Contractor agrees to comply with the following:

### **(a) *Agreement Clauses.***

- (1) Pursuant to Pub. L. 664 ([43 U.S.C. 1241\(b\)](#)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.
- (2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

### **(b) *Contractor and Subcontractor Clauses.*** The contractor agrees—

- (1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- (2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
- (3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

## **EXHIBIT A**

FHWA-1273 -- Revised May 1, 2012

### **REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

#### **I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

## **II. NONDISCRIMINATION**

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

## **6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26, and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26, in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### **III. NONSEGREGATED FACILITIES**

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for

employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

#### **IV. DAVIS-BACON AND RELATED ACT PROVISIONS**

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

##### **1. Minimum wages**

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## **2. Withholding**

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same

prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

### **3. Payrolls and basic records**

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### **4. Apprentices and trainees**

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise

employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be

performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## **VII. SAFETY: ACCIDENT PREVENTION**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

#### **VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

## **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

## **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

### **1. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers to any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\* \* \* \* \*

**2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**2. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and

1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

#### **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

## **XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

## EXHIBIT B

### TITLE VI CONTRACTOR ASSURANCES APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Regulations relative to Nondiscrimination in Federally-assisted programs of the United States Department of Transportation Federal Highway Administration and Federal Transit Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income or Limited English Proficiency in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and Acts and the Regulations relative to Non- discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration or Federal Transit Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to the Recipient or the Federal Highway Administration or the Federal Transit Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Non-compliance:** In the event of the contractor's non-compliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration or the Federal Transit Administration may determine to be appropriate, including, but not limited to:

- a. withholding contract payments to the contractor under the contract until the contractor complies; and/or
- b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration or the Federal Transit Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with, litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

## TITLE VI CONTRACTOR ASSURANCES APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. § 2000d et seq.), (prohibits discrimination on the basis of race, color, national origin), as implemented by 49 C.F.R. § 21.1 et seq. and 49 C.F.R. part 303;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 et seq.) (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794 et seq.) (prohibits discrimination on the basis of disability); and 49 C.F.R. part 27;
- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (Pub. L. 97-248 (1982)), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (102 Stat. 28) ("*... which restore[d] the broad scope of coverage and to clarify the application of Title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and Title VI of the Civil Rights Act of 1964.*");
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 --12189), as implemented by Department of Justice regulations at 28 C.F.R. parts 35 and 36, and Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681 et seq).

## **EXHIBIT C**

### **CONTRACTOR WORKFORCE UTILIZATION (FEDERAL EXECUTIVE ORDER 11246) / EQUAL EMPLOYMENT OPPORTUNITY (Federal - FHWA)**

#### **1. Project Workforce Utilization Goals:**

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications which contain the applicable goals for minority and female participation.

The goals for minority and female utilization are expressed in percentage terms for the contractor's aggregate work-force in each trade on all construction work in the covered area, are referenced in the attached Appendix A.

#### **2. Executive Order 11246**

The Contractor's compliance with Executive Order 11246 and 41-CFR Part 60-4 shall be based on its implementation of the specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(A) and its efforts to meet the goals established for the geographical area where the contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hour performed.

If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan.

Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Pan does not excuse any covered Contractor's of subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

The Contractor shall implement the specific affirmative action standards provided in a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs (OFCCP) Office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractors obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant hereto.

In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites; and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community

organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason thereafter; along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the Union or Unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the Union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO Policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company EEO Policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment, decisions including specific Foreman, etc. prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO Policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor

shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used in the selection process.

- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work-force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (a through p). The efforts of a contractor association, joint contractor union, contractor community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work-force participation, makes a good faith effort to meet with individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of Executive Order 11246 if a particular group is employed in a substantially disparate manner, (for example, even though the

Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).

The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status, (e.g. mechanic, apprentice, trainee, helper, or laborer) dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

Nothing herein provided shall be construed as a limitation upon the application of their laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

The Director of the Office of Federal Contract Compliance Programs, from time to time, shall issue goals and timetables for minority and female utilization which shall be based on appropriate work-force, demographic or other relevant data and which shall cover construction projects or construction contracts performed in specific geographical areas. The goals, which shall be applicable to each construction trade in a covered contractor's or timetables, shall be published as notices in the Federal Register, and shall be inserted by the Contracting officers and applicants, as applicable, in the Notice required by 41 CFR 60-4.2.

**FEDERALLY FUNDED OR ASSISTED PROJECTS**  
**APPENDIX A**  
**(Labor Market Goals)**

**Standard Metropolitan Statistical Area (SMSA)**

**Female**

**Minority**

|  |  |  |  |              |
|--|--|--|--|--------------|
| <b>Bridgeport – Stamford – Norwalk – Danbury</b> |  |  |  | <b>10.2%</b> |
| <b>6.9%</b>                                      |  |  |  |              |

|               |            |            |            |
|---------------|------------|------------|------------|
| Bethel        | Bridgeport | Brookfield | Danbury    |
| Darien        | Derby      | Easton     | Fairfield  |
| Greenwich     | Milford    | Monroe     | New Canaan |
| New Fairfield | Newton     | Norwalk    | Redding    |
| Shelton       | Stamford   | Stratford  | Trumbull   |
| Weston        | Westport   | Wilton     |            |

|   |  |  |  |             |
|---|--|--|--|-------------|
| <b>Hartford – Bristol – New Britain</b> |  |  |  | <b>6.9%</b> |
| <b>6.9%</b>                             |  |  |  |             |

|              |               |               |               |
|--------------|---------------|---------------|---------------|
| Andover      | Avon          | Berlin        | Bloomfield    |
| Bolton       | Bristol       | Burlington    | Canton        |
| Colchester   | Columbia      | Coventry      | Cromwell      |
| East Granby  | East Hampton  | East Hartford | East Windsor  |
| Ellington    | Enfield       | Farmington    | Glastonbury   |
| Granby       | Hartford      | Hebron        | Manchester    |
| Marlborough  | New Britain   | New Hartford  | Newington     |
| Plainville   | Plymouth      | Portland      | Rocky Hill    |
| Simsbury     | South Windsor | Southington   | Stafford      |
| Suffield     | Tolland       | Vernon        | West Hartford |
| Wethersfield | Willington    | Windsor       | Windsor Locks |

|  |  |  |  |             |
|--|--|--|--|-------------|
| <b>New Haven – Waterbury – Meriden</b> |  |  |  | <b>9.0%</b> |
| <b>6.9%</b>                            |  |  |  |             |

|              |                |             |             |
|--------------|----------------|-------------|-------------|
| Beacon Falls | Bethany        | Branford    | Cheshire    |
| Clinton      | East Haven     | Guilford    | Hamden      |
| Madison      | Meriden        | Middlebury  | Naugatuck   |
| New Haven    | North Branford | North Haven | Orange      |
| Prospect     | Southbury      | Thomaston   | Wallingford |
| Waterbury    | Watertown      | West Haven  | Wolcott     |
| Woodbridge   | Woodbury       |             |             |

|                             |  |  |  |             |
|-----------------------------|--|--|--|-------------|
| <b>New London – Norwich</b> |  |  |  | <b>4.5%</b> |
| <b>6.9%</b>                 |  |  |  |             |

|         |           |           |            |
|---------|-----------|-----------|------------|
| Bozrah  | East Lyme | Griswold  | Groton     |
| Ledyard | Lisbon    | Montville | New London |

Norwich  
SpragueOld Lyme  
StoningtonOld Saybrook  
Waterford

Preston

**Non SMSA****Female****Minority****Litchfield – Windham  
6.9%****5.9%**

|                 |                  |                   |                         |
|-----------------|------------------|-------------------|-------------------------|
| Abington        | Ashford          | Ballouville       | Bantam                  |
| Barkhamsted     | Bethlehem        | Bridgewater       | Brooklyn                |
| Canaan          | Canterbury       | Central Village   | Cahplin                 |
| Colebrook       | Cornwall         | Cornwall Bridge   | Danielson               |
| Dayville        | East Canaan      | East Killingly    | East Woodstock          |
| Eastford        | Falls Village    | Gaylordsville     | Goshen                  |
| Grosvenor Dale  | Hampton          | Harwinton         | Kent                    |
| Killigly        | Lakeside         | Litchfield        | Moosup                  |
| Morris          | New Milford      | New Preston       | New Preston Marble Dale |
| Norfolk         | North Canaan     | No. Grosvenordale | North Windham           |
| Oneco           | Pequabuck        | Pine Meadow       | Plainfield              |
| Pleasant Valley | Pomfret          | Pomfret Center    | Putnam                  |
| Quinebaug       | Riverton         | Rogers            | Roxbury                 |
| Salisbury       | Scotland         | Sharon            | South Kent              |
| South Woodstock | Sterling         | Taconic           | Terryville              |
| Thompson        | Torrington       | Warren            | Warrenville             |
| Washington      | Washington Depot | Wauregan          | West Cornwall           |
| Willimantic     | Winchester       | Winchester Center | Windham                 |
| Winsted         | Woodstock        | Woodstock Valley  |                         |

## EXHIBIT D

### Health Insurance Portability and Accountability Act of 1996 (“HIPAA”).

- (a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.
- (b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and
- (c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the “Department”) is a “covered entity” as that term is defined in 45 C.F.R. § 160.103; and
- (d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of “individually identifiable health information,” as that term is defined in 45 C.F.R. § 160.103; and
- (e) The Contractor is a “business associate” of the Department, as that term is defined in 45 C.F.R. § 160.103; and
- (f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.
- (g) Definitions
  - (1) “Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))
  - (2) “Business Associate” shall mean the Contractor.
  - (3) “Covered Entity” shall mean the Department of the State of Connecticut named on page 1 of this Contract.
  - (4) “Designated Record Set” shall have the same meaning as the term “designated record set” in 45 C.F.R. § 164.501.
  - (5) “Electronic Health Record” shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

- (6) "Individual" shall have the same meaning as the term "individual" in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).
  - (7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.
  - (8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.
  - (9) "Required by Law" shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.
  - (10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.
  - (11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.
  - (12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.
  - (13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R. § 164.304.
  - (14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.
  - (15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. § 17932(h)(1)(A)).
- (h) Obligations and Activities of Business Associates.
- (1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.
  - (2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.
  - (3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.

- (4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.
- (5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.
- (6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.
- (7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.
- (8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.
- (9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.
- (10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.

- (13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.
- (14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.
- (15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations
- (16) Obligations in the Event of a Breach
- A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
  - B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
  - C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:
    - 1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.
    - 2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).
    - 3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.

4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.
  5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.
- D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.
- E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.
- (i) Permitted Uses and Disclosure by Business Associate.
- (1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.
  - (2) Specific Use and Disclosure Provisions
    - (A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.
    - (B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or

for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.

(C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).

(j) Obligations of Covered Entity.

(1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.

(2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.

(3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.

(k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.

(l) Term and Termination.

(1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.

(2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:

(A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or

(B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or

- (C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.

(3) Effect of Termination

- (A) Except as provided in (1)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.
- (B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

- (1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.
- (2) Amendment. The Parties agree to take such action as is necessary to amend this Section of the Contract from time to time as is necessary for Covered Entity to comply with requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.
- (3) Survival. The respective rights and obligations of Business Associate shall survive the termination of this Contract.
- (4) Effect on Contract. Except as specifically required to implement the purposes of this Section of the Contract, all other terms of the Contract shall remain in force and effect.
- (5) Construction. This Section of the Contract shall be construed as broadly as necessary to implement and comply with the Privacy Standard. Any ambiguity in this Section of the Contract shall be resolved in favor of a meaning that complies, and is consistent with, the Privacy Standard.

(6) Disclaimer. Covered Entity makes no warranty or representation that compliance with this Section of the Contract will be adequate or satisfactory for Business Associate's own purposes. Covered Entity shall not be liable to Business Associate for any claim, civil or criminal penalty, loss or damage related to or arising from the unauthorized use or disclosure of PHI by Business Associate or any of its officers, directors, employees, contractors or agents, or any third party to whom Business Associate has disclosed PHI contrary to the provisions of this Contract or applicable law. Business Associate is solely responsible for all decisions made, and actions taken, by Business Associate regarding the safeguarding, use and disclosure of PHI within its possession, custody or control.

(7) Indemnification. The Business Associate shall indemnify and hold the Covered Entity harmless from and against any and all claims, liabilities, judgments, fines, assessments, penalties, awards and any statutory damages that may be imposed or assessed pursuant to HIPAA, as amended or the HITECH Act, including, without limitation, attorney's fees, expert witness fees, costs of investigation, litigation or dispute resolution, and costs awarded thereunder, relating to or arising out of any violation by the Business Associate and its agents, including subcontractors, of any obligation of Business Associate and its agents, including subcontractors, under this section of the contract, under HIPAA, the HITECH Act, the Privacy Rule and the Security Rule.

**Notice to Executive Branch State Contractors and Prospective State  
 Contractors of Campaign Contribution and Solicitation Limitations**

This notice is provided under the authority of Connecticut General Statutes §9-612 (f) (2) and is for the purpose of informing state contractors and prospective state contractors of the following law (*italicized words are defined on the reverse side of this page*).

**CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS**

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract or state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder, of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly solicit** contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor or principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

**DUTY TO INFORM**

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

**PENALTIES FOR VIOLATIONS**

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

**Civil penalties**—Up to \$2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to \$2,000 or twice the amount of the prohibited contributions made by their principals.

**Criminal penalties**—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than \$5,000 in fines, or both.

**CONTRACT CONSEQUENCES**

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may result in the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information may be found on the website of the State Elections Enforcement Commission, [www.ct.gov/seec](http://www.ct.gov/seec). Click on the link to "Lobbyist/Contractor Limitations."

## DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract*, (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fundraising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee, serving on the committee that is hosting a fundraising event, introducing the candidate or making other public remarks at a fundraising event, being honored or otherwise recognized at a fundraising event, or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor’s state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age

or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

**EXHIBIT F**

(Federal wage rate package will be inserted here for final executed contract only. Refer to NTC – Federal Wage Determinations)

## **EXHIBIT G**

### **State Wages and Other Related Information**

Please refer to the Department of Labor website for the latest updates, annual adjusted wage rate increases, certified payroll forms and applicable statutes.

<http://www.ctdol.state.ct.us/wgwkstnd/prevailwage.htm>

### **Prevailing Wage Law Poster Language**

**THIS IS A PUBLIC WORKS PROJECT Covered by the  
PREVAILING WAGE LAW CT General Statutes Section 31-53**

**If you have QUESTIONS regarding your wages CALL (860) 263-6790**

**Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.**

### **Informational Bulletin**

**THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE** (applicable to public building contracts entered into on or after July 1, 2007, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is [http://www.osha.gov/fso/ote/training/edcenters/fact\\_sheet.html](http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html);
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

- (7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;
- (8) Proof of completion may be demonstrated through either: (a) the presentation of a bona fide student course completion card issued by the federal OSHA Training Institute; or (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;
- (9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;
- (10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;
- (11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;
- (12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
- (13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;
- (14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and
- (15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.
- (16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgmenu.htm>; or by telephone at (860)263-6790.

**THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.**

November 29, 2006

## **Notice**

### **To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)**

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute. Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute. The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

#### **Forklift Operator:**

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.
- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

**Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.**

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

**CONNECTICUT DEPARTMENT OF LABOR  
WAGE AND WORKPLACE STANDARDS DIVISION**

**CONTRACTORS WAGE CERTIFICATION FORM  
Construction Manager at Risk/General Contractor/Prime Contractor**

I, \_\_\_\_\_ of \_\_\_\_\_  
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the \_\_\_\_\_  
Company Name

\_\_\_\_\_  
Street

\_\_\_\_\_  
City

and all of its subcontractors will pay all workers on the

\_\_\_\_\_  
Project Name and Number

\_\_\_\_\_  
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

\_\_\_\_\_  
Signed

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

Return to: Connecticut Department of Labor  
Wage & Workplace Standards Division  
200 Folly Brook Blvd.  
Wethersfield, CT 06109

Rate Schedule Issued (Date): \_\_\_\_\_

## **Information Bulletin** ***Occupational Classifications***

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53(d).

*Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.*

**Below are additional clarifications of specific job duties performed for certain classifications:**

□ **ASBESTOS WORKERS**

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

□ **ASBESTOS INSULATOR**

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

□ **BOILERMAKERS**

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

□ **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

□ **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular

furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

□ **LABORER, CLEANING**

- The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

□ **DELIVERY PERSONNEL**

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

□ **ELECTRICIANS**

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. \*License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.

□ **ELEVATOR CONSTRUCTORS**

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. \*License required by Connecticut General Statutes: R-1, 2, 5, 6.

□ **FORK LIFT OPERATOR**

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

□ **GLAZIERS**

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and

curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

□ **IRONWORKERS**

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

□ **INSULATOR**

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

□ **LABORERS**

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

□ **PAINTERS**

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

□ **LEAD PAINT REMOVAL**

- Painter's Rate 1. Removal of lead paint from bridges. 2. Removal of lead paint as preparation of any surface to be repainted. 3. Where removal is on a Demolition project prior to reconstruction. • Laborer's Rate 1. Removal of lead paint from any surface NOT to be repainted. 2. Where removal is on a TOTAL Demolition project only.

□ **PLUMBERS AND PIPEFITTERS**

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. \*License required per Connecticut General Statutes: P-1,2,6,7,8,9 J1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.

## ☐ **POWER EQUIPMENT OPERATORS**

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. **\*License required, crane operators only, per Connecticut General Statutes.**

## ☐ **ROOFERS**

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

## ☐ **SHEETMETAL WORKERS**

Fabricate, assemble, install and repair sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

## ☐ **SPRINKLER FITTERS**

Installation, alteration, maintenance and repair of fire protection sprinkler systems. **\*License required per Connecticut General Statutes: F-1, 2, 3, 4.**

## ☐ **TILE MARBLE AND TERRAZZO FINISHERS**

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

## ☐ **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are required to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance

of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. **\*License required, drivers only, per Connecticut General Statutes.**

**For example:**

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

☐ Any questions regarding the proper classification should be directed to:

**Public Contract Compliance Unit  
Wage and Workplace Standards Division  
Connecticut Department of Labor  
200 Folly Brook Blvd, Wethersfield, CT 06109  
(860) 263-6543.**

**Connecticut Department of Labor  
Wage and Workplace Standards Division  
FOOTNOTES**

□ Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

**Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons**  
(Building Construction) and (Residential- Hartford, Middlesex, New Haven, New London and  
Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

**Elevator Constructors: Mechanics**

a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

**Glaziers**

a. Paid Holidays: Labor Day and Christmas Day.

**Power Equipment Operators**  
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

**Ironworkers**

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

**Laborers (Tunnel Construction)**

a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he

fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

**Roofers**

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

**Sprinkler Fitters**

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

**Truck Drivers**

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Rev. 7/1/19

**SEE BELOW FOR STATE WAGE RATES**

**INSERT STATE WAGES HERE**

**Minimum Rates and Classifications for  
Heavy/Highway Construction**

ID# 20-15499

**Connecticut Department of Labor  
Wage and Workplace Standards**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay

Project Number: #1510-333/334

Project Town: Waterbury

State#: #1510-333/334

FAP#: #0008(145)

Project: Rehabilitation of Bridges #03176/03177 & #03178/03179 (Waterbury)

| CLASSIFICATION  | Hourly | Benefits   |
|---|--------|------------|
| 1) Boilermaker  | 33.79  | 34% + 8.96 |
| 1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons             | 35.72  | 33.16      |
| 2) Carpenters, Piledrivermen  | 34.53  | 25.64      |
| 2a) Diver Tenders   | 34.53  | 25.64      |
| 3) Divers   | 42.99  | 25.64      |
| 03a) Millwrights  | 34.94  | 26.19      |
| 4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray | 52.25  | 22.55      |
| 4a) Painters: Brush and Roller  | 35.62  | 22.55      |
| 4b) Painters: Spray Only  | 38.62  | 22.55      |
| 4c) Painters: Steel Only  | 37.62  | 22.55      |
| 4d) Painters: Blast and Spray   | 38.62  | 22.55      |
| 4e) Painters: Tanks, Tower and Swing  | 37.62  | 22.55      |

Project: Rehabilitation of Bridges #03176/03177 & #03178/03179 (Waterbury)

|  |       |                        |
|--|-------|------------------------|
| 5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)   | 39.92 | 28.75+3% of gross wage |
| 6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection   | 36.67 | 37.62 + a              |
| 7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)   | 44.63 | 32.95                  |
| ----LABORERS-----  |       |                        |
| 8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist  | 31.0  | 22.15                  |
| 9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen  | 31.25 | 22.15                  |
| 10) Group 3: Pipelayers  | 31.5  | 22.15                  |
| 11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators | 31.5  | 22.15                  |
| 12) Group 5: Toxic waste removal (non-mechanical systems)  | 33.0  | 22.15                  |
| 13) Group 6: Blasters  | 32.75 | 22.15                  |
| Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)  | 32.0  | 22.15                  |
| Group 8: Traffic control signalmen   | 18.0  | 22.15                  |
| Group 9: Hydraulic Drills  | 29.3  | 18.90                  |
| ----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----  |       |                        |
| 13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders  | 33.23 | 22.15 + a              |
| 13b) Brakemen, Trackmen  | 32.26 | 22.15 + a              |
| ----CLEANING, CONCRETE AND CAULKING TUNNEL----   |       |                        |

|  |       |           |
|--|-------|-----------|
| 14) Concrete Workers, Form Movers, and Strippers                               | 32.26 | 22.15 + a |
| 15) Form Erectors  | 32.59 | 22.15 + a |
| ----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----    |       |           |
| 16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers                        | 32.26 | 22.15 + a |
| 17) Laborers Topside, Cage Tenders, Bellman                                    | 32.15 | 22.15 + a |
| 18) Miners   | 33.23 | 22.15 + a |
| ----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----                 |       |           |
| 18a) Blaster   | 39.72 | 22.15 + a |
| 19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders | 39.52 | 22.15 + a |
| 20) Change House Attendants, Powder Watchmen, Top on Iron Bolts                | 37.54 | 22.15 + a |
| 21) Mucking Machine Operator   | 40.31 | 22.15 + a |
| ----TRUCK DRIVERS----(*see note below)   |       |           |
| Two axle trucks  | 29.86 | 25.79 + a |
| Three axle trucks; two axle ready mix  | 29.97 | 25.79 + a |
| Three axle ready mix   | 30.03 | 25.79 + a |
| Four axle trucks, heavy duty trailer (up to 40 tons)                           | 30.08 | 25.79 + a |
| Four axle ready-mix  | 30.13 | 25.79 + a |
| Heavy duty trailer (40 tons and over)  | 30.35 | 25.79 + a |

|   |       |           |
|---|-------|-----------|
| Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids) | 30.13 | 25.79 + a |
|---|-------|-----------|

---

----POWER EQUIPMENT OPERATORS----

|   |       |           |
|---|-------|-----------|
| Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)   | 42.45 | 25.30 + a |
| Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)  | 42.11 | 25.30 + a |
| Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required) | 41.32 | 25.30 + a |
| Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)   | 40.91 | 25.30 + a |
| Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24   | 40.28 | 25.30 + a |
| Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.  | 40.28 | 25.30 + a |
| Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).   | 39.95 | 25.30 + a |
| Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24  | 39.59 | 25.30 + a |
| Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.  | 39.17 | 25.30 + a |
| Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).  | 38.71 | 25.30 + a |
| Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.  | 36.54 | 25.30 + a |
| Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.  | 36.54 | 25.30 + a |

|   |       |           |
|---|-------|-----------|
| Group 12: Wellpoint Operator.   | 36.48 | 25.30 + a |
| Group 13: Compressor Battery Operator.  | 35.86 | 25.30 + a |
| Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).                                | 34.66 | 25.30 + a |
| Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.  | 34.23 | 25.30 + a |
| Group 16: Maintenance Engineer/Oiler  | 33.54 | 25.30 + a |
| Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator. | 38.11 | 25.30 + a |
| Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).   | 35.53 | 25.30 + a |

**\*\*NOTE: SEE BELOW**

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)---

-

|  |       |              |
|--|-------|--------------|
| 20) Lineman, Cable Splicer, Technician                       | 48.19 | 6.5% + 22.00 |
| 21) Heavy Equipment Operator                                 | 42.26 | 6.5% + 19.88 |
| 22) Equipment Operator, Tractor Trailer Driver, Material Men | 40.96 | 6.5% + 19.21 |
| 23) Driver Groundmen   | 26.5  | 6.5% + 9.00  |
| 23a) Truck Driver  | 40.96 | 6.5% + 17.76 |

----LINE CONSTRUCTION----

|                               |       |              |
|-------------------------------|-------|--------------|
| 24) Driver Groundmen          | 30.92 | 6.5% + 9.70  |
| 25) Groundmen                 | 22.67 | 6.5% + 6.20  |
| 26) Heavy Equipment Operators | 37.1  | 6.5% + 10.70 |

|  |       |              |
|--|-------|--------------|
| 27) Linemen, Cable Splicers, Dynamite Men                      | 41.22 | 6.5% + 12.20 |
| <hr/>  |       |              |
| 28) Material Men, Tractor Trailer Drivers, Equipment Operators | 35.04 | 6.5% + 10.45 |
| <hr/>  |       |              |

Project: Rehabilitation of Bridges #03176/03177 & #03178/03179 (Waterbury)

Welders: Rate for craft to which welding is incidental.

\*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.

**ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:**

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)**
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson**

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work

--Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing

*The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.*

*Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.*

*It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.*

*The annual adjustments will be posted on the Department of Labor's Web page: [www.ct.gov/dol](http://www.ct.gov/dol). For those without internet access, please contact the division listed below.*

*The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.*

*All subsequent annual adjustments will be posted on our Web Site for contractor access.*

*Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.*

**Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage**

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

**As of:** September 10, 2020

Project: Rehabilitation of Bridges #03176/03177 & #03178/03179 (Waterbury)

**~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).**

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.